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THE

Montreal Medical Journal

A MONTHLY RECORD OF THE

PROGRESS OF MEDICAL AND SURGICAL SCIENCE.

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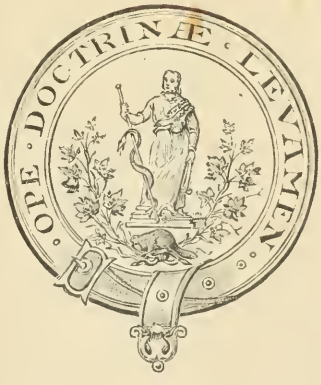

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THE

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SPECIAL NOTICE.

With this number commences what is, to all intents and purposes, a new series of the JOURNAL, although to prevent confusion it has been deemed wise to treat the new volume as being in direct continuity with the old series.

The editorial staff have for long appreciated the fact that the position of Montreal as a medical centre, and the activity displayed by the graduates of our schools, both those resident in the city and those scattered through the length and breadth of North America, fully justify an extension and remodelling of the JOURNAL, so as to render it a more complete exponent of medical thought and progress in our midst. It is considered that the opportune moment has arrived, and now the JOURNAL appears in a new and expanded form, under the direction of a fuller editorial board of which each member will be responsible for one special department of medical science.

In its new form the JOURNAL will present the following features:

1. Articles detailing the results of original work. The increasing amount of original research and observation in medical and surgical science emanating from the universities and hospitals of Montreal ensures a steady increase in the extent and importance of this department of the JOURNAL. The JOURNAL will be the recognized organ for the communication of such work.

2. The issue of each month will contain the report of a clinic as actually delivered by a member of the staff of one or other of the large hospitals in Montreal. The editors believe that these reports will form a useful feature of the JOURNAL and will be appreciated by our subscribers.

3. The Review Department, under the control of members of the staffs of the Montreal General and Royal Victoria Hospitals, will form

a prominent part of the programme. Signed reviews and criticisms on general medicine and surgery, as well as on the special subjects, will appear month by month, giving a *resumé* of work in the medical world.

4. A Monthly Retrospect will be given of Canadian medical literature. By means of this the JOURNAL will be a record of work performed not only in Montreal, but in Canada and by Canadians at large.

5. Editorial comment will be made on subjects of interest to the profession. Notice will be taken of all important events occurring in the medical colleges and societies of Canada and at our chief hospitals. Appointments, professional distinctions gained at home and abroad by men with local connections, the authorship of contributions to literature, and obituary notices will be recorded. For assistance in making this portion of the JOURNAL as complete and full of interest as possible the editorial board appeal to their friends everywhere.

6. Full reports will be given, as in past volumes, of the Proceedings of the Montreal Medico-Chirurgical Society.

7. While the JOURNAL will be conducted so as to appeal to the profession at large, its position as a record of medical intelligence in connection with McGill University and its graduates will not be lost sight of. The medical alumni of McGill University are so widely scattered that the JOURNAL would justify its existence if it merely performed the function of keeping them informed of the doings and successes of their contemporaries.

Such is the programme proposed by the editorial board and publishers : to maintain a high-class medical journal, in close touch with the Medical Faculty of McGill University, yet not narrowed down to the interests of that University alone—on the contrary, appealing to Canadian practitioners at large. While the staff is in the main connected with the Medical Faculty of McGill University, the JOURNAL is in no way under the control of that Faculty.

Original Communications.

INFECTION IN THE DENTIST'S CHAIR.*

By George E. Armstrong, M.D.

Assistant Professor of Clinical Surgery [McGill University; Surgeon to the Montreal General Hospital; Attending Surgeon to the Western Hospital.

I presume that every member of this Society must have noticed, as I have done, the absence of evidence in dental offices of means of sterilizing the instruments, and also noted that no attempt seemed to be made to cleanse the field of operation.

The following cases have directed my attention more particularly to this subject, and I think that perhaps a brief report of them may prove not altogether uninteresting; in fact I feel like making a stronger statement and saying that this is an important subject and that a discussion here may arouse some interest among the members of this Society, and possibly indirectly lead to good results in developing greater care among our dentists.

M. B., aet. 31, housemaid, was admitted into the Montreal General Hospital on the 27th of March, 1895, complaining of a sore throat and sore gums and tender, painful teeth. About the 22nd February last patient suffered from sore throat, for which she used an iron gargle. Shortly afterwards three teeth in the left lower jaw became sore and ulcerated and were extracted. Soreness and swelling of the gums immediately succeeded the extraction of the teeth and the patient suffered pain on attempting to bite anything hard. She has been treated without effect for some time, the condition becoming progressively worse.

Patient was born in Canada; had the exanthemata in childhood: always been healthy; has not been taking any medicine of any kind.

Present condition.—A fairly well nourished girl of a rather low order of intelligence. Mental condition unimpaired. Her temperature is 105° F., pulse 140, respiration 28. Complains of salivation and pain in the mouth; can only eat soft food.

Patient has no difficulty in opening the mouth. Gums are swollen, soft and œdematous and encroach upon the teeth and covered with a dirty sordes.

The œdema extends from the gums into the cheeks, but does not

* Read before the Montreal Medico-Chirurgical Society, May 31st, 1895.

affect the palate, tonsils or the tongue. Teeth are painful on pressure, but not loose. Tongue coated. Breath extremely foul and fœtid.

Vascular and respiratory system normal. Urine contains neither albumen nor sugar.

Treatment.—I ordered a mouth wash containing pot. chlor., carbolic acid, alum, glycerine and water; also a hot boracic acid sol. grs. viii to x oz., and directed that the mouth be washed with these solutions alternately every half hour. She was also given a mixture the tr. fer. mur.

By the 1st of April there was an improvement in the condition of the mouth and the temperature was lower, ranging from 102° to 103½° F. General condition good.

On the 2nd of April the patient became delirious and the pulse weaker. A careful examination failed to detect any pneumonia. Stimulants were ordered, but the delirium continued and the patient attempted to swallow the gargle.

On the 3rd of April the urine became smoky and was found to contain blood and albumen. That evening the delirium continued. Hypodermic injections of strychnia were given, but the pulse became weaker and weaker and the patient died on the morning of the 4th of April.

At the autopsy there was found a severe septic stomatitis, acute nephritis and acute pyelitis, also recent acute ulceration of stomach and ascending colon.

There was a suspicion that possibly the patient had swallowed the gargle, containing carbolic acid and chlorate of potash in quantities sufficient to cause poisoning, and with the object of determining whether this was the case or not, Dr. Ruttan kindly made a careful examination of the blood and urine and he reported that there was no methæmoglobin and that the urine did not contain chlorate of potassium or phenol. There was therefore no evidence of poisoning by pot. chlor. or carbolic acid.

The case appears from the result of the autopsy to be one of septic intoxication or infection, but examination of the parts about the mouth does not show a local invasion of the veins or lymph glands to make it certain that that was the point of infection. I mentioned to Dr. Wyatt Johnston my intention of reporting the case and he has kindly written out a very full report of the autopsy, which I think will be interesting.

Autopsy performed April 4th, 1895, four and a half hours after death.

Body that of a poorly nourished young woman. About the legs a

few bluish patches of skin surrounded by ecchymoses. The gums along the whole of the upper and lower jaws on both sides are swollen, sodden and of a dull, livid, grey colour, looking microbic in places.

Head.—Dura and skull normal. Veins of pia moderately filled. Brain normal.

Thorax.—No fluid in pleura or pericardium. Beneath epicardium are numerous small ecchymoses, most abundant along posterior border of right ventricle.

Right heart contains 4 oz. of fluid blood, which appears to have a somewhat brownish tinge, but which changes to bright red on standing in the air. Heart muscle pale, mitral valves a little thick, other valves normal. No ecchymosis of endocardium.

Left lung (330 grm.) shows a few sub-pleural ecchymoses, most numerous posteriorly. Bronchi normal. Pulmonary artery normal. Lung substance somewhat congested, but crepitant throughout. Right lung (410 grm.) crepitant, but much congested and œdematous. Bronchi contain whitish froth.

Larynx and trachea show nothing special.

Tongue shows sordes on surface, but is free from inflammation or ulceration. Sub-maxillary glands not noticeably swollen on section, but a little œdematous. No signs of phlegmon or thrombosis about the pharynx or in the cervical veins.

On the left side of the lower jaw is a ragged gangrenous looking ulceration extending back, but not apparently involving the cheek. The entire extent of the gums of both upper and lower jaws appears to be swollen, soft and of a dull grey colour. There does not appear to be any swelling or infiltration of the glands in the retro-pharyngeal or parotid regions.

Owing to restrictions placed upon the autopsy a dissection of the jaw bones and palate was not possible. As far as could be ascertained no thrombosis of the larger veins had occurred.

Œsophagus normal. Stomach contains reddish mucus. The mucosa about pylorus shows small elevations capped with hæmorrhages. Duodenum normal.

Small intestine normal. The cæcum and the ascending colon show very marked ecchymotic areas, each of which is capped by a small hæmorrhagic slough; these sloughs are all adherent. Rectum normal.

Kidneys.—Right weighs 200 grms. and left 220 grms., both much enlarged and look about double normal size. Capsules readily removed. On section cortex looks opaque and greyish and columns of Bertini very wide. No evidence of ecchymosis or hæmorrhagic in-

farction in kidney substance, but the entire pelvis of each kidney presents a uniform thick hæmorrhagic layer of mucosa extending up into each of the calices and terminating sharply below at the beginning of the ureters; rest of ureters normal.

Bladder contains a little opaque, brownish urine, found by Dr. Ruttan to be free from methæmoglobin, chlorate of potassium and phenol, but to contain numerous tube casts. Uterus large, pear-shaped; mucosa reddish. Cicatrices about os. In right ovary a recent corpus lutum.

Liver weighs 2180 grms. On section central portion of lobules distinct.

Spleen 360 grms., very large and soft, of greyish-red colour.

Microscopic Examination.—Microscopic examination of gums near the site of the ulceration shows small cell proliferation of sub-mucosa. The surface epithelium is not necrosed. Moderate number of streptococci and diplococci on surface, none in deeper parts of gum.

Microscopic examination of the kidney shows swelling and degeneration of the epithelium. The hæmorrhagic areas of the pelvis show thick layer of streptococci.

Cultures from pelvis of kidney and from spleen give growth of streptococcus pyogenes.

My second case was that of a young man in apparently good health who came to me with a large abscess of the cheek. This abscess had developed immediately after the extraction of a molar tooth. The abscess contained fully an ounce of thick, creamy pus.

I quote from the *Dominion Dental Journal* for January, 1894, a case of infection and abscess of the cheek reported by W. Geo. Beers, L.D.S I do this to show that the dentists are alive to the danger of dirty instruments and at the same time to illustrate the carelessness of antiseptic principles that obtains among some of them.

A young lady in perfect health applied to a dentist to have a cavity in a molar tooth filled. The young lady noticed that the bur was stuck up with what appeared to her the dust of teeth collected during previous operations. The bur slipped twice and injured the soft parts in the neighbourhood of the tooth. This was followed by suppuration and a very troublesome abscess.

This experience very naturally led me to study the subject of the bacterial flora of exposed mucous surfaces.

I find that all the micro-organisms that may be present in the air, food and ingested fluids may appear temporarily in the mouth. The number of bacteria which have been cultivated from the human mouth is very large. Miller has isolated over one hundred species.

Freund has cultivated eighteen different chromogenic micro-organisms from the mouth. The bacteria find there moisture and temperature and nutritive pabulum favourable for their growth—conditions much more favourable than obtain on the skin.

A minute drop of saliva spread upon a glass slide and dried and stained with one of the aniline colours will always be found to contain an immense number of bacteria of various forms. Some of these are attached to epithelial cells and some are scattered about singly or in groups.

Vignal has tested a considerable number of micro-organisms obtained by him in his cultures from the human mouth with reference to their peptonizing action on various kinds of food, with the idea that some of them may have an important physiological function of this kind. Out of 19 species he found 10 which after a longer or shorter time dissolved fibrin, 9 which dissolved gluten, 10 which dissolved casein, 5 which dissolved albumen, 9 changed lactose into lactic acid, 7 inverted sugar cane, 7 caused fermentation of glucose and 7 coagulated milk.

Probably for mechanical and chemical reasons many of the bacteria do not remain long in the mouth.

Sanarelli has shown that normal saliva has the power of destroying the vitality of a limited number of pathogenic bacteria, including the following species: Staphylococcus pyogenes aureus, staphylococcus pyogenes, micrococcus tetragenus, bacillus typhi abdominalis, spirillum choleræ asiaticæ.

The diphtheria bacillus was not destroyed in filtered saliva, but did not multiply in it. On the other hand, it proved to be a very favourable medicine for the development of micrococcus pneumoniæ cruposæ.

Sternberg gives a list of 24 pathogenic micro-organisms that have been isolated. The frequent presence of pathogenic bacteria in the healthy mouth is of great practical importance.

The streptococcus pyogenes, staphylococcus pyogenes aureus and albus, the bacillus coli communis and the micrococcus lanceolatus are especially to be feared in surgical operations in the mouth. Both the streptococcus brevis and longus have been found.

Nette found the streptococcus pyogenes in 7 out of 127 healthy mouths examined; that is, in 5.5 per cent. of the cases.

Dörnberger found streptococci in the mouths of healthy children in in 45 per cent. of the 94 cases examined. Widal and Besançon found streptococci constantly and in large numbers in the mouths of 20 healthy persons and still more abundantly in the mouths and pharynx of 49 persons affected with various diseases.

Another important point is that streptococci are increased in numbers in inflammatory conditions of the tonsils, pharynx and mouth, and that they are commonly associated with the Lœffler bacillus in diphtheria.

While it is highly probable that the majority of micro-organisms that gain access to the mouth perish, the secretions of the mouth have a germicidal action, but we do not know the factors that favour their attenuation or exaltation.

The wonder, then, is not that such a simple operation as the extraction of a tooth should occasionally be followed by local and general septic infection, but that such a sequence is so seldom seen.

Miller states that the dentinal tubules have a greater average diameter than the bacilli. These tubules are not empty, but contain living matter.

I learn from a casual perusal of dental literature that it is now believed and taught by dentists that not only the gum-boil, but decay of teeth are due to bacteria.

It necessarily follows therefore that instruments used in cleansing tooth cavities and drills and burs, in fact any instrument used in cutting dentine, even if it does not come in contact with the soft parts, becomes infected.

I learn from this study of the bacterial flora of the healthy human mouth that all instruments used therein should have been previously sterilized and that all operative work done in the human mouth should be done, as far as possible, on strictly antiseptic principles. Probably the free flow of blood and drainage accounts for the rarity of septic inoculation in the dentist's chair.

All dental instruments, including forceps, gauges, burs, etc., should be sterilized immediately before using. I am told that many of our best dentists do this regularly, but how often do we see forceps and other instruments laid out ready for use on velvet or plush covered trays or even carried in a convenient coat pocket.

I would suggest also that some attempt be made to clean the field of operation by using an antiseptic mouth wash and by carefully washing around the teeth and along the margin of the gums, and by the subsequent use by the patient of a non-poisonous antiseptic solution. I would suggest also that we advise patients suffering from inflammatory conditions of the mouth, pharynx and tonsils to delay if possible a visit to the dentist until the mucous membrane in these regions is restored to a normally clean condition.

If you remember the history of my first and only fatal case states that the teeth were extracted soon after she had suffered from a sore throat.

I have not touched upon the subject of syphilis being contracted in the dentist's chair but I may say that I always ask patients suffering from syphilitic lesions of the mouth and throat, if I know that they think of consulting a dentist, to tell him the condition of their throat, that he may be on his guard and not unwittingly convey the poison to some innocent person.

Lastly, the subject of sponges; we all know their danger and how difficult it is to make them sterile. They are ruled out of nearly all German operating rooms. Yet dentists use them without a proper sterilization, with hands not rendered sterile, and with the same sponge wipe the face and mouth, in fact pack it into the spaces from which the teeth have been removed to check hæmorrhage.

It might be argued that this was a case of osteo-myelitis of the lower jaw, the local injury being the traumatism from the extraction of the teeth and the infection coming from the colon. Kocher thinks many cases of osteo-myelitis result in this way. Clinically, however, the infection was from a fœtid septic stomatitis. Streptococci were found in the mouth, in the kidney and in the spleen. It was then clearly a case of streptococcus poisoning. Moreover, the common colon bacillus was not found in either the mouth, kidney or spleen. I think, therefore, the infection was from the mouth and that the ulcers in the colon were hæmorrhagic infarcts due to the poisoned condition of the blood.

TWO CASES OF SEVERE ANÆMIA WITH ABSENCE OF HYDROCHLORIC ACID IN THE GASTRIC JUICE.

By F. G. Finley, MD.

Physician to the Montreal General Hospital: Assistant Professor of Medicine and Clinical Medicine, McGill University.

Of the two cases reported below both were regarded during life as pernicious anæmia. The second, however, was clearly shown by the post-mortem examination not to be of this nature. As they both presented a severe form of anæmia, poikilocytosis and absence of free acid in the stomach, they are recorded inasmuch as the association of these conditions is still involved in considerable obscurity.

Case I.—Pernicious anæmia, absence of hydrochloric acid in gastric juice—Marked improvement after thymol—Failure of arsenic and bone marrow.

Case.—H. J., male, æt. 52, of temperate habits, was sent to the Montreal General Hospital by Dr. Hutchison on November 17, 1894, complaining of indigestion, vomiting and weakness.

He states that he has had small-pox and gonorrhœa. He has not been strong for ten years and has suffered from vomiting, lasting a day or two at a time, two or three times yearly. He has been much worried of late by family trouble.

Present illness—Began in August, 1894, with weakness and loss of flesh. For several months he suffered from nausea and occasionally vomiting induced by slight exertion. At no time was there any abdominal pain or hæmatemesis. Increasing weakness obliged him to take to bed about the end of October and the vomiting continued up to the time of admission to hospital. He has lost about twenty-five pounds in weight.

Family history—Father is healthy, æt. 82; mother, a sister and brother died of consumption and a brother is stated to have died of anæmia.

Present condition—He is moderately nourished, the panniculus adiposus is small. The muscles are soft but of fair size and the weight is 124 pounds. The skin is moist and perspiring. The face and back of hands are of a decided lemon colour, and the conjunctivæ show a slight yellow hue. The mucous membranes are pale and there is a considerable degree of anæmia present. The tongue is moderately coated and flabby. The abdomen is normal, presenting no tenderness or tumour, and the liver and spleen are not enlarged. The

heart is of normal size; a soft systolic murmur is heard with maximum intensity at the pulmonary cartilage, transmitted to the aortic and down the sternum as far as the fourth costal cartilage. The lungs are normal. The urine is acid, S.G. 1020; no albumen, sugar, urobilin or bile colouring matters are present.

November 18.—Blood examination shows slight irregularity in the shape of the corpuscles (poikilocytosis) and a few small corpuscles (micro-cytes) are present. On Nov. 25th red cells, 1,928,770 to c.m.; hæmoglobin 45 per cent. (Fleischl). Stained specimens show some irregularity in shape and size of the corpuscles and a few microcytes. Ratio of red to white 3 to 508. The gastric contents withdrawn after a test meal show an entire absence of hydrochloric acid (Congored, Boas and Gunzberg's tests); lactic acid absent.

The red corpuscles have become more irregular in shape. Careful measurements show that many of them are larger than normal, measuring 9 to 10 m., instead of 7 to 8 m.; a few microcytes 3.6 m. The white cells are relatively but not absolutely increased. Nucleated red cells have not been found in repeated examinations.

The urine has varied considerably, S.G. 1015-1020, being on some occasions dark in colour and at others light. Urobilin (Huppert's test) has been frequently but not always present, and the spectrum of pathological urobilin has also been occasionally seen.

On January 23, the spleen was felt below the costal border, and has since continued enlarged. On March 17 a severe attack of facial erysipelas set in, the temperatures ranging from 103° to 105°, and terminating by crisis on the sixth day.

With the exception of this attack of erysipelas referred to, there was no fever during the six months that the patient was under observation. Retinal hæmorrhages were almost absent. The weight fluctuated from 119 to 124 lbs. Vomiting occurred a few times in the fortnight following admission and then ceased. The stools were examined for intestinal parasites with a negative result.

The blood began to improve in the first half of March, and, as will be seen by referring to the table appended, by the end of April almost reached the normal. Corresponding with the improvement of the blood conditions, the patient's strength and energy returned and he was able to leave the hospital on May 16.

The shape of the blood corpuscles has always continued irregular, and hydrochloric acid has been persistently absent from the gastric juice.

Treatment—Arsenic has been faithfully used for several months, also bone marrow, iron and latterly thymol have also been given a

trial. Arsenic has been used throughout internally in the shape of Fowler's solution in doses of from m ii to m x t.i d. The stomach would not tolerate a large dose, and on several occasions it had to be discontinued. Arsenious acid in pill form was better borne, and hypodermics of Fowler's solution in water were also tried but proved painful and were discontinued on the formation of a small abscess. A glycerine extract of bone marrow was used from January 8 to February 8, during which time the corpuscles decreased from 1,792,000 to 1,320,00, although there was a slight increase in the hæmoglobin 35 per cent. to 45 per cent.. Blaud's pills in doses of 10 to 15 grs, t.i.d. were used from February 8th to March 4th, the red corpuscles rising in this period from 1,320,000 to 1,770,000, but with a decrease of hæmoglobin.

On March 3rd thymol was commenced. A reference to the table below will show the relation of the blood count to the principal drugs used.

Blood Counts.				Treatment.
Nov. 25...	Red B.C. 1,928,000	Hglobin 45%		Nov. 24th. Arsenic in v to x, and
Jan. 7 ...	1,792,000	Fleischl 30%	to 25%	also alternating with $\frac{1}{20}$ gr. arseni-
25....	1,820,000	40%		ous acid t.i.d. taken during almost
Feb. 6....	1,320,009	40%		whole period of hospital residence.
12....	1,340,000	45%		Jan. 8 to Feb. 8. Bone marrow:
March 4.	1,770,000	30%	to 35%	March 3 to June 15. Thymol gr.
14.	2,440,000	45%		$\frac{1}{2}$ to gr. $1\frac{1}{2}$ t.i d.
April 5...	2,860,000	65%		March 17 to 22. Erysipelas.
12...	3,140,000	65%	to 70%	
30...	4,810,000	80%	to 85%	
June 26...	2,197,000	40%		

On comparing the blood counts with the treatment it will be noted that no improvement appeared with arsenic. All the blood counts made after March 4th showed a steady improvement, an improvement which was coincident with the use of thymol and arsenic, and which had not been effected by the use of arsenic alone. The experience of this case is certainly suggestive of the beneficial action of thymol. The attack of erysipelas complicated the case at this stage, and suggests the possibility of its exerting a modifying influence over the disease. It will, however, be noted that the improvement began *before* the attack of erysipelas, and co-incidentally with the use of thymol.

A blood count made June 25th showed a great decrease in the number of corpuscles and hæmoglobin, a relapse so frequently seen in pernicious anæmia.

Case II.—Severe anæmia—Arterial sclerosis—Dilated heart—Absence of hydrochloric acid in Gastric fluid—Autopsy.

R. O'C., æt. 61, labourer, admitted to the Montreal General Hospi-

tal on January 25th, 1895, complaining of weakness and shortness of breath.

Personal history—He has had measles, whooping cough and scarlet fever, but no venereal disease.

Present illness began in the spring of 1894 with frequency of micturition, and in November, there were severe paroxysms of pain in the right groin.

In October, 1894, began to be much troubled with shortness of breath, especially on going up steps, and about this time he noticed his face to be of a slight yellow colour. He has noticed for some time back small red spots on the hands, lasting from a week to ten days, evidently subcutaneous hæmorrhages. He has had palpitation, dizziness, and has lost about 30 lbs. in weight. He has never had headache, nose bleeding or diarrhœa. He has vomited on three occasions and suffered a few times from heartburn.

Family history—Father died from fever and ague; mother died at 57 from an illness attended by cough and expectoration.

Present condition—He is rather thin, the muscles are soft and the panniculus adiposus is small; weight 125 pounds. The face and back of hands are of a marked yellow hue and there is marked pallor of the conjunctivæ and gums. Two small subcutaneous hæmorrhages on the back of the right hand.

The arteries show a moderate degree of thickening; pulse 84, slight irregularity in rhythm and tension not increased; the apex impulse is strong and in the nipple line, the cardiac sounds are normal. The lungs and abdominal viscera present no abnormality on physical examination. Urine pale, S.G. 1015, no albumen or sugar. Urobilin negative with the spectroscope.

Jan. 26.—Blood count, red cells 3,320,000; hæmoglobin 25 to 30 per cent. (Fleischl). Irregularity in size and shape of the corpuscles is well marked. Hydrochloric acid absent from gastric contents in a test meal by same tests as used in first case. Subsequent blood examinations were made as follows:

Feb'y.	12.	Red cells,	2,250,000;	hæmoglobin,	20 to 25 per cent.
"	28	"	2,660,000;	"	20 to 25 "
March	3	"	2,390,000;	"	20 to 25 "

Numerous examinations were made of stained specimens of blood. These always showed marked irregularity in size and shape of the red blood corpuscles. Most of the cells were under rather than over the size of a red blood corpuscle, a very common size being 5.4 m.; microcytes were not numerous and the largest cells have not been over 10 m. No nucleated red cells have been seen.

The urine has been for the most part pale in colour, although occasionally somewhat dark. It has frequently in both pale and dark specimens shown the presence of urobilin with Huppert's test, but not with the spectroscope. The sp. gr. has usually been about 1015.

The temperature has been normal throughout. There have been no retinal hæmorrhages, but occasionally small subcutaneous hæmorrhages have appeared on the hands. A hæmic murmur developed at the pulmonary cartilege shortly after admission and the pulse has at times been intermittent. The gastric contents have persistently shown an absence of free acids. The weight has increased to 133 pounds.

The treatment, in addition to cardiac tonics, consisted in the administration of arsenic, beginning with m. ii. Fowler's solution t.i.d. and increasing the dose by m. i. daily until m. xvi were given, when it was omitted for two days on account of vomiting, and then recommenced with a dose m. xv. t.i.d., which has been continued to the present.

A glycerin extract of bone marrow in doses of ʒii. to ʒiii. t.i.d. was begun on March 1st in addition to the arsenic. The results of treatment have, as in the first case, been unsatisfactory, the blood conditions being precisely the same as on admission.

P.S.—This patient developed great anasarca of the lower extremities, double hydrothorax and dyspnœa, obviously of cardiac origin, and died April 7th.

Autopsy performed by Dr. Wyatt Johnston showed a moderate quantity of fluid in the pleural cavities. The heart was much enlarged on both sides and the right distended with blood. Œdema and slight emphysæma of the lungs.

Kidneys—Left slightly enlarged, capsules adherent and a few cysts present.

Prostate presented two adenomata projecting into the bladder.

The liver was rather small and on section the veins were prominent. The spleen was large and firm.

The mucosa of the stomach was soft and the organ contained a pint of curdled matter. The red marrow of sternum, ribs and vertebræ was increased. On microscopic examination pigment was found about the central vein. No iron reaction and no pigment in peripheral zones.

Stomach on microscopic examination showed a loss of the superficial part of the mucosa from post-mortem digestion, but the glands in the deeper portion of the mucosa were normal in every respect.

presenting neither atrophy, increase in connective tissue, nor alteration of the epithelium.

The lemon tinge of skin present in both cases was extremely suggestive of pernicious anæmia.

The diagnosis of the first case rests chiefly on the condition of the blood, together with an absence of any of the usual causes for a secondary anæmia. The blood counts invariably showed a relative excess of hæmoglobin, a sign which is usually present in the pernicious form of anæmia. The marked irregularity in shape and size without increase of the white cells is also very characteristic. The presence of nucleated red cells which has been insisted on by some as essential in the diagnosis of pernicious anæmia are in my experience rather the exception than the rule. In five cases under my observation in which they have been carefully looked for they were present only in one. The splenic enlargement present in this case is rather exceptional, although it is a well recognized feature of the disease.

The presence of pathological urobilin is an important diagnostic feature, and urine of high colour and low sp. gr. is also suggestive of the condition.

The absence of free hydrochloric acid from the gastric contents at first raised the question of the possibility of carcinoma of the stomach being the cause of anæmia. The absence of pain, of tumour, of hæmatemesis and of persistent vomiting, together with the relatively embonpoint of the patient were decidedly against this view, and the absence of progressive emaciation during the past three and a half months also bear out the original diagnosis. A leucocytosis, again, which is commonly present in cancer, was here absent.

In the second case the diagnosis of pernicious anæmia in a patient with arterial sclerosis and dilated heart, made during life, was not borne out by the results of the autopsy. The deposit of iron in the liver was absent, and only the ordinary senile pigmentation in the center of the lobule was found.

Hüfler, quoted by Ewald, records a number of cases where hydrochloric acid was absent in cases of valvular disease, and it may be that this was the cause here. Such a degree of anæmia with marked poikilocytosis must, however, be unusual in cardiac disease, and the kidneys were so slightly affected that the anæmia of renal disease was hardly possible. Whether any relation between anæmia and absence of hydrochloric acid exists can only be determined by further observation. The case under consideration is, however, not one of anæmia associated with atrophy of the gastric tubules.

The absence of such an important constituent as hydrochloric acid does not seem to have caused any serious gastric disturbance in either case. We may perhaps assume that compensation is effected by the pancreas.

In the first case nausea, occasional vomiting and heart-burn began apparently coincidently with the onset of the symptoms of anæmia, and in the second case such symptoms were entirely absent.

It is well known that the weight and general nutrition are usually retained in the subject of pernicious anæmia, and the loss of weight occurring in these cases may be satisfactorily accounted for by the absence of gastric digestion.

The association of atrophy of the gastric glands and a grave form of anæmia has been recognized for a number of years. First pointed out by Austin Flint, this observation has been confirmed by Fenwick by Osler and Henry and many others, and the fact is now well established. There has been and still is considerable divergence of opinion about the interpretation of these observations. Many observers regard the atrophy as a consequence and result of the anæmia and as having, therefore, but little bearing on the condition. There are others, however, Flint and Fenwick among the number, who do not hesitate to state that the atrophy is primary and the anæmia secondary, so that the term idiopathic anæmia is not strictly correct in such, cases. Osler and Henry, for instance (*Am. Jour. Med. Sci.*, 1886) relate a case with all the clinical features of pernicious anæmia, including the blood changes, in which extensive atrophy was found in the gastric tubules at autopsy. The onset of the malady was preceded for years by loss of flesh, indigestion and vomiting, and the authors therefore conclude that the gastric condition was primary. Hunter (*British Med. J., 1890-92*), records a case in which atrophy of the gastric glands was found after death in a case of pernicious anæmia, and he brings forward arguments based on pathological investigation and urinary analysis to show that abnormal fermentation in the gastro-intestinal tract may generate certain toxic agents which have a deleterious action on the blood, and induce a process of blood destruction.

As hydrochloric acid is the natural antiseptic agent of the stomach, its absence would naturally favour these abnormal chemical changes. Without dwelling on this point, Hunter has made a valuable addition to our knowledge by pointing out that pathological urobilin is frequently present in large quantities in pernicious anæmia. As this substance is derived from blood pigment, its presence in the urine indicates excessive destruction of blood. Hunter regards the presence of this substance as of much diagnostic value. It may be detected by

the spectroscope, in which it shows a broad dark band lying close to the line F., and also a considerable absorption of the outer part of the blue spectrum. Jaksch also recommends Huppert's test, performed by collecting the precipitate formed by the addition of milk of lime to urine, adding alcohol and a drop or two of dilute sulphuric acid in a test tube and boiling. On settling, the supernatant liquid shows a a red tint. Hunter recommends adding a solution of zinc chloride in alcohol to urine, when a green fluorescence develops. This test, however, seems inferior in delicacy to the others, and has been negative in the above cases on the few occasions in which it was employed.

If we admit the frequent occurrence of gastric atrophy in pernicious anæmia we would *a priori* expect an absence of free hydrochloric acid in the gastric juice.

From a rather hurried search through various reports of such cases I do not, however, find this point referred to except by Eisenlohr. This writer *(Deutsch Med. Woch., 1892,)* relates a case in which this symptom was present in pernicious anæmia, and in which there was atrophy of the gastric glands.

That hydrochloric acid should be absent in two cases of grave anæmia seems rather remarkable, and it would prove of interest to know in what proportion of cases this sign is present. In the absence of post-mortem examination its significance is somewhat doubtful, as the acid may be absent in a number of conditions. Recognizing the fact, however, that atrophy of the gastric tubules is a frequent accompaniment of pernicious anæmia, it is highly suggestive of the association of the two conditions.

We are as yet hardly in possession of sufficient facts to state whether we can recognise a distinct gastric type of the disease, but it can readily be seen that such a view may have an important bearing on treatment. If we accept Hunter's view that abnormal fermentation with the formation of hæmolytic agents is going on in the gastro-intestinal tract, we may find that the administration of intestinal antiseptics is of primary importance, and indeed Gibson has recorded a case in which such a line of treatment was followed by marked improvement.

ANÆSTHESIA IN A CASE WITH DIMINISHED BREATHING AREA.*

By G. Gordon Campbell, B.Sc., M.D.,
Assistant Demonstrator in Medicine, McGill University. Assistant Physician, Montreal General Hospital.

The patient, Mrs. S., was a middle-aged, slightly built woman, of medium height, much emaciated, and suffering from an enormous abdominal tumour. As I had not seen the case until just before I began to anæsthetise her, I had prepared to administer ether by means of a Clover's inhaler. While making the usual explanations about the effect of the ether, I noticed that her respirations were extremely shallow and quicker than normal ; and on requesting her to take several long breaths, in order to fill the bag before turning on the ether, I saw that this was an impossibility. No effort on her part increased the air capacity of the lungs as it was already taxed to the utmost limit. I then turned on the ether and gave it very cautiously at first, with plenty of fresh air, not thinking it advisable in this case to hasten the anæsthesia by shutting off the air. All went well until there was about 20 per cent. of ether vapour in the respired air, and then the breathing, which had been gradually getting quicker, became rapid and laboured, and reminded me very strongly of the condition present during a bad attack of asthma : violent efforts at respiration and little or no air entering the chest. There was no spasm in the air passages, and the patient was only partially anæsthetised, so, in order to remove any possible degree of asphyxia which might be added to the effect of the ether, I gave it without using the bag No improvement followed, and chloroform given on a piece of stockinette stretched over a wire frame was substituted. The dyspnœa gradually passed off and the breathing, although continuing quick and shallow, was not laboured, the pulse, however, was rapid and of small volume. Full anæsthesia was established in a few minutes, and after the usual preparation the abdomen was opened and the growth removed. While the adhesions between it and the intra-abdominal organs were being separated, the usual respiratory reflexes were excited, and a condition of dyspnœa, similar but less pronounced than that seen at the outset under ether, occurred. I had to request the operator once or twice to cease his manipulations for a few moments and allow the quickened respirations to subside. I feared

* Read before the Montreal Medico-Chirurgical Society, April 19, 1895.

to continue giving the chloroform while they were present lest I should give an overdose, and withdrawing it altogether for any length of time would have allowed of partial recovery of the patient ; an equally dangerous condition. The pulse had become much slower (80) and was of very poor volume indeed when the tumour was removed, eighty minutes after I began the anæsthesia. I then replaced the chloroform with ether and continued the anæsthesia for an hour longer with the Clover's inhaler.

In order to compare as far as possible the two agents, without having a possible third factor, asphyxia, in the case, I gave six breaths of pure air to every one from the bag. An almost immediate improvement was noted in the patient's condition, the pulse became quicker, increasing to 105, but was very much fuller, and more forcible, although in sudden relief of abdominal tensions like this the opposite usually occurs, the patient bleeding into her own abdominal vessels. The respirations increased from 24 to 30 per minute, and intra-abdominal reflexes of about equal intensity to those observed under chloroform were set up by further manipulations in the abdominal cavity. Now, however, there was no interference with the breathing, showing that the cause of the former dyspnœa had been mechanical altogether. The immense size of the solid tumour had completely filled up the abdominal cavity and pushed up the diaphragm encroaching upon the area of the thorax. The dyspnœa here was plainly due to the physiological effect of the ether absorbed upon the respiratory centre, causing quickened breathing ; once the mechanical cause of obstruction was removed, the increased respiratory rate and increased depth of breathing caused no distress. The patient made an exceptionally good recovery and had no after vomiting. The chief interest in the case, apart from the comparison of the two agents, lies in the fact that it shows a condition in which chloroform should be selected in preference to ether as an anæsthetic. It must, however, be borne in mind that in cases such as these, where there is some interference with free breathing, the danger of accidents from chloroform is very considerably increased.

Clinic.

LATERAL CURVATURE OF THE SPINE.

Clinical Lecture Delivered at the Royal Victoria Hospital.

By T. G. Roddick, M.D.

Professor of Surgery, McGill University; Surgeon, Royal Victoria Hospital; Consulting Surgeon, Montreal General Hospital.

Gentlemen—

To-day I have an opportunity of presenting to you a typical illustration of the affection known as Lateral Curvature of the spine.

This young girl, native of Gaspé, is 13 years of age, of healthy parents,—nothing in the family or personal history bearing on the case. The deformity which at present exists was first noticed only fifteen months ago, but has been steadily increasing ever since, until it has reached this very exaggerated stage. She has suffered no pain or discomfort of any kind, so far as we can find out. In the absence of the mother the facts are elicited with difficulty and may be incorrect in some measure. It is possible that the trouble may have originated in her being obliged to carry a younger child. Doubtless the condition has been present for a much longer time than fifteen months, although no attempt has been made to treat the case, the mother being informed that the girl "would grow out of it." This advice, unfortunately, is too often given in these cases. the mischief being allowed to go on until the deformity has increased to a point beyond all possibility of correction, distorting the figure and contracting the visceral cavities, the sufferer reaching at last a condition of absolute disability.

Lateral curvature or Scoliosis (the name given to it by Hippocrates) is also called Rotary Lateral Curvature, because besides the twisting of the spine there is rotation of the vertebræ. The tendency to curve laterally, however, is always noticed first, the rotation taking place subsequently.

Surgeons are still at variance regarding the pathology of scoliosis: I think there can be very little doubt, however, that it has its origin in a weakness of the spinal muscles. These allow the vertebral column to be swerved to one or other side, until at length several of the vertebræ and intervertebral plates become compressed, causing the trunk to bend in that direction. The ligamentous structures likewise

become altered in shape and position. The body would be expected to bend to one side, and become fixed in that position, like a tree which has been tied down for some time. But such does not actually occur, or for a very short time only. So-called *compensatory curves* are established, so that when the curvature begins in the dorsal region, we find (what is well illustrated in this case) that the lumbar vertebræ are diverted to the opposite side. In extreme cases like this a third compensation occurs in the cervical region, thus allowing the patient to stand with the trunk in a fairly vertical direction. In a great majority of cases the original curve is dorsal, with the convexity to the right. Why this should be so is not easily explained, unless it be from the greater use of the right arm and hand.

Scoliosis is found to occur much more frequently in girls than boys. This is probably due to the fact that the latter take more exercise, their muscles becoming firmer and not disposed to yield. Girls have a habit of standing on one leg, and will sit reading in a large arm-chair—or writing—with the body in a crouched position. The school, indeed, has much to do in causing lateral curvature, a careless teacher allowing the child to sit for hours with the body in a twisted position. Ricketty children are very liable to lateral curvature. The habit of carrying children on one arm is another cause, and is a danger both to the carrier and carried, as illustrated probably in this girl. Habitual faulty positions of any kind may induce it. Inequality in the length of the lower extremities is another cause. The occurrence of empyema with contraction of one side of the chest, and the contraction from extensive burns, are other common causes of scoliosis. I have an interesting case at present under my care, in a child aged eight years, where a distinct compensatary dorsal curve has followed wry neck. This is so pronounced that I doubt if division of the storno mastoid will be of any avail.

Lateral curvature is often discovered accidentally by the tailor or dressmaker, who notices that one shoulder projects, or that one hip is higher than the other. There may have been nothing previously to attract attention to the fact, because many cases (and our own of to-day is one) go on for months without causing symptoms. As a rule, however, the mother notices that the girl or boy, as the case may be, is more easily fatigued than before, and is disposed to rest much of the time. There will, perhaps, be pains of a neuralgic character running from the spine round the chest, usually more marked on one side than the other. It is very important, therefore, that a correct early diagnosis should be made, because the condition is undoubtedly curable in the early stage (when the muscles only are at fault) or

when the patient is young and the bones can be moulded back to their original shape. When long established, and especially when the age of development has passed, the affection may be incurable.

In all suspected cases, therefore, your duty is to strip the patient of all clothing low enough at least to expose the trochanters, and to place the trunk in a good light. The outline of the spine is now carefully inspected, and the spinous processes marked with the ordinary crayon. In the case of this patient, who is now ready for examination, you will notice two very distinct curves, one occupying the dorsal region, having a convexity to the right; the other the lumbar region, with a convexity to the left. This case is extreme enough to necessitate a cervical curve, as the spines which I have marked in that region form a slight, but, nevertheless, distinct curve. You will notice when the patient bends forward, with the legs straight, that the curves are made more apparent. When she stoops beyond a certain distance, the body inclines to the left side. By getting her to stand as erect as possible, the curves will be noticed to be all diminished, and the patient is taller by perhaps half an inch than when standing at ease. The right shoulder blade, you will observe, is standing out and raised above the level of its fellow. It is perched, as it were, on the top of these ribs, which, owing to the rotation of the vertebræ, have been bent or twisted, contracting the thorax on that side. This distortion of the chest walls really indicates the severity of every case. On the opposite side, the shoulder blade is depressed, and the wall of the thorax appears to have fallen in. The left hip is more prominent than the right. Turning the patient round to examine the front of the chest, we notice that on the right side the breast recedes, the nipple being directed outwards: on the left, on the contrary, it is more prominent. Our examination would not be complete without measuring carefully the length of the limbs. There is no difference noticeable in this case.

Diagnosis here, then is Scoliosis of the more common variety, beginning in the dorsal region, having the convexity of the curve towards the right, and compensating cervical and lumbar curves whose convexities are towards the left.

Treatment—Here the indications will chiefly be to correct faulty habits: to attend to the general health; to train the spinal and other muscles by a systematic course of gymnastics: and lastly to correct deformity by the use of some apparatus which will support the tired muscles.

Your first duty, then, will be to impress on the mother and nurse

the necessity for careful watching the patient. Whatever the occupation may be, whether at the table, piano, or reading or writing, the best possible posture must be insisted upon. I am in the habit of ordering a special chair for these cases, so that the back may be moved to any angle. Thus, when the young girl is sitting at the piano, the chair is so adjusted that she is supported all the time. When writing both arms should be symmetrically placed on the table. The patient's feet should always rest on the floor or on a stool, and the common practice of crossing the thighs is to be deprecated, as this has the same effect on the spine as standing on one leg. She should not be allowed to loll about in easy chairs, reading or sewing.

The general health must be attended to; food should be of the best and the meals should be regularly taken. Iron and hypophosphites may both be indicated, or used alternately. Sea bathing, in the season may be prescribed, or failing that, the mother should be instructed to douche the back thoroughly, at least once a day with a strong solution of sea-salt poured from a pitcher, placed two or three feet above the body of the patient. As she pours the water with one hand, she rubs or massages the back with one other. An ordinary douche bag, with a large tube and nozzle will be more convenient and less fatiguing. Regular massage, performed by a trained masseuse will be still better. The muscles on the side of the greater convexity will need most attention. Electricity may be of advantage too. Following the salt bathing, it is advisable that the patient should lie for half an hour to an hour upon a very hard couch, or better still, a board covered simply with a fold or two of blanket—nothing under the head—in fact the best results are obtained when a hole is made in the board, into which the back of the head sinks. The board should be six inches wider than the greatest breadth of the body, and at least a foot longer than the height. All the clothing should be removed from the body, with the exception of an under vest, and the back should touch the board at every point. The arms may be moved from the side—outstretched, or made to meet above the head—and then brought back to the sides, so that a gentle movement of the muscles is kept up. Occasionally for a few moments the patient turns over on the board, and rests the side of the convexity on a firm pad or pillow, with a view to correcting the rotation. When the case is advanced, this should be done for a length of time each day. A sort of sling made of canvas and wide enough to hold the convexity has been devised for this purpose. Another exercise that may be practised on the board is that of lying on the face, and raising the head and trunk from the horizontal position, so as to develop such

muscles as the erector spinæ, latissimus dorsi, spinalis dorsi, as well as the posterior cervical muscles. This exercise is at first very tiring and difficult, but as the muscles become stronger and the spine more flexible, it is accomplished with ease. This exercise may be gone through also with the body projecting over the end of any strong table, the feet and legs being held firmly down at the same time. The severity of all movements may be increased by instructing the mother or nurse to resist them by simple pressure of the hand.

I am in the habit, where practicable, of placing my patients with lateral curvature in the hands of a teacher of gymnastics, and where actual osseous deformity is not present, excellent results follow. The patients should always be trained, however, in a separate class, as the exercises which suit strong, healthy children would hardly do for them. The movements usually prescribed are those which develop muscles of the back and trunk generally, such as light dumbbell and barbell exercises—bending the body backward, forward, and laterally —in short everything to increase the flexibility of the spine. I have been recently recommending the carrying of a light weight on the head while about the house or marching in the gymnasium. I was struck during a recent visit to Egypt with the remarkably erect carriage of the women of that country. Lateral curvature is said to be almost unknown there. I think the explanation is to be found in the fact that from early childhood the natives carry the water bottle, baskets, &c., on the head, thus keeping up a symmetrical development of the back muscles, and preventing any swerving of the spine from the normal vertical position. In the effort to steady the object on the head the patient with lateral curvature will be noticed to straighten the curves, and probably increase her height a quarter of an inch or more. The ordinary parlour gymnasium will be found of service, especially where an instructor is not at hand. Rowing is good exercise, providing the exertion be not great. Riding horseback with a reversible saddle may be permitted in the later stage of recovery. Care should be taken that no article of clothing interferes with freedom of movement during any form of exercise. In slight cases even stays should be prohibited at any time, or if worn at all they should be so constructed as to admit of the full expansion of the chest walls. After severe exercise of any kind a short rest on the board for half an hour should be taken.

Mechanical appliances are to be employed only where the deformity is considerable, and where something is required to hold the corrected position in the interval between the exercises. Sayer's plaster of Paris jacket, applied with the body well extended, has many advo-

cates in the treatment of this as of angular curvature. I was never much impressed with its utility, however, in this variety, and its weight is objectionable. A jacket of paper or felt, moulded over plaster moulds, is, in my opinion, preferable. I am in the habit usually, of ordering for these cases a very simple brace, somewhat similar to the one I show you, consisting of a stout leather waistband made to fit the hips as accurately as possible, and surmounted by two crutchlike stays to fit the axilla. There is a pad, adjusted by means of a spring, to the convexity, which is intended to affect it by slight but steady pressure This should be worn only when the patient is walking out or travelling; at other times the simple stays already described may be worn, or nothing at all.

I must warn you against promising too much from the treatment in cases of lateral curvature. Slight cases, at any age, in which the muscles only are affected, can be all cured in a few months. A second class of cases, in which osseous deformity is present to a slight extent, may also be cured, especially in children up to fourteen years. They can be improved in older persons. But in a third class (and our patient of to-day comes under this heading) we can promise only to prevent the deformity from becoming greater. In very young children only is even slight improvement possible. The osseous changes are too confirmed. It is only right to say, however, that some remarkably satisfactory results have followed the treatment by forcible correction, as devised and carried out by Lorenz, of Vienna, Bradford and others. They think it not impossible, in even advanced osseous deformity cases, to force the convexity back and undo, as it were, the rotation, providing the patient is young. The principle of the method is, first, to fix the trunk in a frame, and then bring great pressure on the convexity by means of webbing, counter extension being meantime exerted on the opposite or projecting side of the pelvis. The body is partly suspended at the same time by means of an apparatus similar to that used during the application of Sayre's plaster jacket. The whole thing is cumbersome and expensive, and adapted only for hospitals or large institutions devoted wholly to orthopædic work.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Treatment of Heart Disease at Manheim.

1. Frank J. Withered. "The treatment of chronic disease of the heart by baths and gymnastics as practised at Manheim."—*Brit. Med. Journ.*, 1895, II. p. 1015.

2. John F. H. Broadbent. "On the treatment of chronic heart disease by the methods of Dr. Schott, of Manheim," with remarks by Sir William Broadbent, Bart., M.D., F.R.C.P.—*Practitioner*, May, 1895.

The success attained by the Schott treatment has lately been again brought into prominence by several papers. Among them the two mentioned above give a clear description of the process, and have the advantage of being written from the result of personal observation.

The treatment adopted consists in two distinct processes: (1.) By baths containing various mineral substances and carbonic acid in solution; (2.) By a series of graduated gentle exercises or movements with resistance.

(1.) The waters of Manheim are certainly rich in free carbonic acid gas, and also contain 2 to 3 per cent of common salt, and 2 to 3 per 1,000 of chloride of calcium and carbonate of lime. At the outset of treatment the baths are carefully graded, the patient being placed in a bath for six to eight minutes at 92° to 95°F., and containing 1 per cent. of salt, 1 per 1,000 chloride of calcium and without carbonic acid. After a variable number of baths, the proportion of salt is gradually increased and their temperature lowered. Eventually baths of full strength in mineral constituents and carbonic acid are administered.

In the healthy heart a reduction of the pulse is noted, amounting, in Dr. Withered's case to four per minute, and in the diseased heart the effect is still more marked, the pulse being slowed and its volume and force being increased. In cases of cardiac dilatation, diminution of

the area of cardiac dulness is noted, and the liver, when enlarged from venous congestion, also diminishes in size. Subjectively there is a marked improvement in the physical comfort of the patient.

(2.) The treatment by exercise consists in a series of slowly performed movements of the trunk and limbs against slight resistance applied by an attendant. These exercises are carefully regulated to avoid fatigue or breathlessness; indeed, they are stated to diminish the pulse rate, and to cause its beat to become more regular and forcible.

Mode of action.—Dr. Schott believes that the sensory nerve endings are stimulated by the baths, and, by a reflex action on the cardiac nerves and muscle, cause the modification referred to in the heart's action. Sir Wm. Broadbent attributes an important *rôle* in the process to a diminution in blood pressure, which may be perceived by the finger, thus relieving the work of the left ventricle. The mode of action of the gymnastic exercises is believed by Schott to be also dependent on reflex action. Dr. Broadbent suggests that the slow movement of the muscles increases their vascular supply, this being a well recognised physiological process. At the same time the contractions are not sufficiently strong to force the venous blood back to the heart. In this way a transfer of blood takes place from the venous to the arterial system, the obstruction in the pulmonary circuit is diminished, and the right heart is relieved.

Dr. Schott is of opinion that all forms of cardiac disease may be greatly benefited by the treatment above described, with the exception of cases of aneurism and of advanced arterial sclerosis. Even in arterial sclerosis improvement is sometimes seen. Dr. Withered speaks enthusiastically of the marked benefit frequently observed in advanced cases of valvular disease with dropsy and dyspnœa, an improvement in his opinion rarely seen in cases treated by drugs.

It is possible to prepare artificial baths containing the necessary constituents, and Dr. Withered refers to two cases treated at the Middlesex Hospital with marked benefit.

Prognosis of Apoplexy.

Alfred G. Barrs. "On the Prognosis of Apoplexy due to Cerebral Hæmorrhage."

Dr. Barrs in a clinical lecture at Leeds makes some interesting remarks on this difficult subject. His observations refer only to prognosis as to life. The use of the term apoplexy is clearly defined in its clinical sense as one in which a person passes suddenly from

apparent health to one in which the functions of the cerebrum are suspended ; a state in which the patient loses all voluntary movement and perception. Much stress is laid on the condition of the kidneys. Dr. Barrs found that in his experience of old hemiplegic cases the urine almost without exception was free from albumen, he also quotes Dana's statistics *(N. Y. Med. Rec., Feb. 23rd, 1895,)* of 100 cases in only one of whom was albumen present in the urine, the inference being that the renal cases generally prove fatal.

A number of cases are quoted showing that the mortality in patients with renal disease is greatly in excess of those in whom the kidneys are healthy. The figures, however, are so stated that an exact comparison of the numbers is impossible.

Caution is, however, necessary in diagnosing renal disease simply from the presence of albumen, as both that substance and sugar may be present in an apopletic seizure. The presence of albumen is, however, even in the absence of renal disease, a serious sign.

The presence of Cheyne-Stokes respiration and of hyperpyrexia are also signs of bad omen. A temperature rising to 104°, 106° or 108° is indeed of absolutely fatal significance.

In conclusion, Dr. Barrs states that any case of apoplexy due to cerebral hæmorrhage will, in all probability, prove fatal if any one of the three conditions mentioned are present, renal disease, Cheyne-Stokes respiration, or hyperpyrexia. If no one of these three makes its appearance, the patient may and probably will recover however long insensibility may last and however deep it may be.

Frederick G. Finley.

Tapping the Vertebral Canal.

Augustus Caillé. "Tapping the vertebral canal."—*New York Medical Journal*, June 15th, 1895.

The writer in a paper read at the last meeting of the American Pediatric Society advocates the tapping of the vertebral canal in the lumbar region, and the withdrawing of some of the sub-arachnoid fluid, either as a means of relieving pressure symptoms in various affections of the brain, or as a means of diagnosis. The measure was first suggested by Quincke at a meeting of the German Medical Congress in 1891, and since then a number of cases have been reported in which this procedure was resorted to. Tapping the spinal canal is done with the understanding that there is an open communication between the sub-arachnoid space surrounding the spinal cord and the ventricles of the brain. The puncture is made between the third and fourth, or

fourth and fifth lumbar vertebræ, immediately below the spinous process, or a little to one side of the median line, the needle passing between the adjoining vertebræ through the dura mater into the spinal canal. The terminal cone of the cord is situated at the level of the first lumbar vertebra, and if the puncture is made below this it is not likely that any of the divergent strands of the cauda equina will be injured. The puncture is best made with the patient's body bent forward. Narcosis is unnecessary and aspiration is not required, as the cerebro-spinal fluid will ooze out drop by drop, or even squirt out if under much pressure. Care should be taken to prevent any sudden movement of the patient lest the needle be broken. The writer's experience so far is limited to only four cases. In three of these tubercle bacilli were sparingly found in the flakey sediment of the fluid withdrawn. In one, twenty-five centimetres of a clear limpid fluid were removed with relief to pressure symptoms, as evidenced by the pupils at once becoming equal in size and sensitive to light. In the fourth, an adult, as much as 50 c.c. of a clear fluid were allowed to run out. In tubercular meningitis, it is pointed out, the fluid is invariably clear and limpid; in other forms of meningitis it may be cloudy or turbid, and in some cases fluid distinctly purulent in character is met with.

Führbinger, of Berlin (*Berlin. Klin. Woch.*, April 1, 1895), reports that he has punctured the spinal membranes in 86 cases. An anæsthetic is unnecessary, and aspiration of the fluid may give rise to pain in the neck, head or back, so the writer uses the Pravaz syringe almost exclusively. The amount of fluid withdrawn varied from a few drops to 110 c.c., and does not always correspond to the amount present or to the pressure. In 37 cases of tuberculous meningitis the diagnosis was established in 29 cases by finding the bacillus in the fluid evacuated. In this writer's opinion any curative action can hardly be thought of; the symptom complex of this disease, he thinks, is not to any great extent the direct result of increased pressure. In one case of cerebral hæmorrhage with rupture into the ventricles blood was withdrawn, as well as in a case of hæmorrhage into the cerebellum rupturing into the fourth ventricle. One tapping in a case of lepto-meningitis gave pus. In brain tumours, basilar meningitis and uræmia no improvement was noticeable after tapping. In chronic hydrocephalus this operation promises considerable relief and is a much safer proceeding than tapping the ventricles through the cerebrum.

A. D. Blackader.

Surgery.

Hypertrophy of Prostate.

J. William White. "Result of treatment of hypertrophy of the prostate."—*New York Med. Rec.*, June 1, 1895.

The treatment of this condition has been attracting a good deal of attention, especially since Mr. A. F. McGill read his paper on the treatment of retention of urine from prostatic enlargement at the Leeds meeting of the British Medical Association in 1889. Various methods of operative treatment have been suggested, some attacking the prostate from within the bladder and others through Von Dittel's perineal incision, and recently the suggestion of the relationship of prostate and testicle made by John Hunter has been studied, with the result that castration, single or double, has not only been advised, but actually carried out in now over a hundred reported cases.

Dr. White, of Philadelphia, is generally looked upon as the champion of this method of bringing about a wasting of the prostate and thus relieving the symptoms which its enlargement has induced.

In his paper read before the American Association of Surgeons Dr. White refers to Sinot's theory that prostatic hypertrophy is a natural hypertrophy of age, and then mentions other theories as, for instance, that it results from exceesive sexual indulgence. It is sought to establish a close analogy between the relations existing between the ovaries and uterus and that existing between the testicles and prostate. The close nervous association controlling blood supply between these organs is pointed out. All development is regulated by nerve function. The testicles secrete spermatic fluid long after spermatozoa have ceased to exist in it and after the power of reproduction has ceased to exist. In such cases the removal of the testicle has the same effect upon the hypertrophy of the prostate as in those in whom the reproductive function still exists. The testicles have two functions, that of reproduction and that of imparting the quality of masculinity to the individual. Possibly it is the perversion of the latter function after the former has ceased to be active which imparts the motive force to cause the hypertrophy of the prostate, a closely associated organ as shown above.

Griffiths some years ago put forward the view that the prostate should be considered a sexual rather than a urinary organ.

At any rate it seems to be very generally admitted by surgeons having experience in castration for retention due to prostatic obstruction, that after the testicles are removed the prostate lessens in size and the obstruction to the outflow of urine in most instances disappears. It is stated that removal of one testicle causes wasting of that side of the prostate corresponding to the testicle removed. The shrinking is said to begin at once and to be appreciable in a week or ten days after castration.

It is an operation, however, not devoid of danger. Dr. White in his paper has collected 111 cases, and of these there were 20 deaths from the operation. Of these deaths Dr. White claims that 12 were desperate cases and death was due to complicated conditions. It is quite possible that if all operations done were reported that the number of deaths would be still greater.

Following out this line of thought, experiments have been performed to determine if it was necessary to remove the whole testicle, or whether the same atrophy of the prostate would result from division of certain parts of the spermatic cord. In this connection some experiments performed by Alessandri and reported in *Il Policlinico,* May 1, 1895, and reprinted in the *Brit. Med. Jour.*, are of interest. He finds that after ligature of the vas deferens the testis and epididymis eventually atrophy. The process begins with dilatation of the canaliculi of the epididymis and narrowing of the seminiferous tubules; fatty degeneration and increase of connective tissue about the vessels finally obliterate the canals. These changes occur more slowly in the epididymis. The author never found cystic degeneration either partial or *en masse.* Ligature of the spermatic artery and pampiniform plexus *en masse* invariably caused atrophy of the testis. If the circulation be maintained through the artery of the vas the testis and epididymis still atrophy, but more slowly. Ligature of the spermatic artery or pampiniform plexus alone causes partial atrophy. Ligature of the spermatic artery with some of the pampiniform veins caused hæmorrhagic infarction, degeneration, formation of fibrous tissue, but not so rapidly as in ligature *en masse.* The epididymis was only affected secondarily. Ligature of the artery of the vas deferens alone has no effect on the testis or epididymis. Excision of the nerves of the cord is not without effect on the nutrition of the testis. A coagulative necrosis beginning at the centre of the testis and spreading to the periphery, with similar changes in the epididymis, was noticed after injury or excision of the nerves. There was, however, no noteworthy diminution in the size of the testicle seventy-five days after operation.

According to these experiments ligature of the vas deferns should bring about the same atrophy of the prostate as castration. It is in order now for some one to try simple crushing of the testicle, the same as was formerly done to deer. This would result in a simple subcutaneous non-perforating wound and atrophy of the testicle.

It sometimes happens that surgeons are called upon to relieve old men who cannot use a catheter and in whom obstruction to the outflow of urine from enlarged prostate has existed so long that purulent cystitis, dilated kidney, and hypertrophy of bladder wall, ureteral wall and heart, has developed to such an extent that any surgical procedure is attended by great danger to life. In these the simplest operation only can be considered, and some men in such an extreme condition may be willing to sacrifice their testicles, but we need an operation that will relieve the patient of the offending parts of his prostate without such a mutilation as castration, and until a comparatively safe method of enucleating the prostate is devised the field for prostatectomy will be very limited indeed. However, the technique is improving every year, and we hope that soon we shall be in a position to afford relief to patients suffering from prostatic hypertrophy, and to do so with such a low rate of mortality that the operation can be recommended to patients before secondary changes have occurred, which would render recovery from any operation extremely hazardous.

Pharmacology and Therapeutics.

Treatment of Psoriasis.

Radcliffe Crocker. "On salicin and salicylates in the treatment of psoriasis and some other skin affections."—*The Lancet*, June 8, 1895.

The writer in this paper, which formed part of the introduction to a discussion on the internal therapeutics of psoriasis at the annual meeting of the British Dermatological Society, claims a very definite value for this treatment. He thinks that under the great authority of the German school, attention has been directly too exclusively to mere local treatment in skin diseases. The discovery of the influence of thyroid extract was a startling reminder that the old humoral pathology is perhaps not quite dead, and may yet live again in a more exact and scientific form. He was first induced to prescribe the salicylates in a case of psoriasis accompanied by symptoms of tonsillitis. The improvement in the appearance of the patches which followed from week to week, was very remarkable. Since then he has given the salicylates an extensive trial with results in many instances equally striking and conclusive, especially in those cases of *psoriasis guttata* of extensive and recent development, the very form unsuited for the exhibition of either thyroid extract or arsenic. Under the influence of the drug, he observed a diminution of the hyperæmia, the scales were no longer formed abundantly, while the old crusts became easily detached leaving a pale red surface which became smoother week by week. Should the drug produce any gastro-intestinal irritation, an aggravation of the psoriasis may result, requiring the administration of an alkaline sedative for a few days, after which the salicylates may be resumed in smaller doses. He claims for the salicylates also much success in the treatment of the various forms of *erythema multiforme*, and also in *erythema nodosum*, and mentions one case of *lupus erythematosus* in which striking improvement followed their administration. He sums up a very interesting paper as follows: Salicylate of soda, and probably salicin and its derivatives, are of much value in the treatment of psoriasis, especially during the period of active development, and in hyperæmic cases which are unsuitable as a rule for arsenic and thyroid extract. They are useful in all forms

except when they produce dyspepsia, and perhaps in old chronic patches.

Treatment of Cardiac Affections.

T. R. FRASER. "The remedies employed in cardiac affections and their treatment."—*Edinburgh Medical Journal*, April, 1895.

This paper opened a discussion on cardiac therapeutics at the Edinburgh Medico-Chirurgical Society. The author claimed for strophanthus that of all the cardiac tonics it acted most powerfully on the cardiac muscle. One part of the dry alcoholic extract in ten million parts of water, causes extreme systolic contraction in the living heart of a frog in fifty minutes, while the most active of the soluble principles of digitalis has but little effect in a solution of one in fifty thousand. On the other hand, the solution of digitalis exerts at least fifty times greater contractile power on the blood vessels, than does a similar solution of strophanthus. With regard to other cardiac tonics the writer states that strophanthus extract is 8 times more powerful than adonidin and scillitoxin, 30 times more powerful than convallamarin, 300 times more powerful than good specimens of digitalin, and 30,000 times more powerful than caffeine.

In mitral and mitral tricuspid lesions the drug given in doses of six to eight minims of the tincture produces a marked rise in arterial tension, and may be persevered with for several months without giving rise to troublesome symptoms.

In aortic regurgitation distinct evil may be done by a cardiac tonic like digitalis, which at the same time produces contraction of the vessels. Strophanthus may, however, be of much service if compensation has not been established. In cardiac insufficiency without valvular lesion, due to changes in the myocardium, advantage may be derived from the exhibition of strophanthus.

Failure of cardiac tonics is to be expected (1) when the degeneration of the myocardium is so far advanced that adequate contraction of the heart cannot be originated; (2) in mechanical obstruction of the circulation caused by valve leakage or stenosis, so extreme that no possible increase in the strength of the heart's contraction can produce a sufficient circulation of blood; (3) in a combination of degeneration, and of mechanical strain due to valve lesions, where each separately would be insufficient to cause failure, but where the combination is sufficient to do so; (4) when conditions outside the heart, either in the pulmonary or general circulation, such as bronchitis, pleurisy or hepatic disease are of a severe character.

External Application of Pilocarpine.

MOLLIÈRE. "On the external application of pilocarpine in the treatment of nephritis"—*Lyon Medical.* April 11 and 21, 1895.

In a long and interesting article the writer advocates the external use of pilocarpine after a trial of it in his own practice in over fifty cases during the past ten years. He extols it as of great value in both acute and chronic nephritis, producing rapid cure in the former, and in the latter improvement with a longer continuance of life than by the use of other palliative methods. His method is to use it in the form of an ointment containing nitrate of pilocarpine with white vaseline, 1 in 1,000 or 2,000. A quantity of this is rubbed in over the skin of the whole trunk, which is then enveloped in a thick layer of cotton wool and a sheet of oil-cloth, and the whole maintained in place by bandages. This may be left on for several hours, or if the perspiration is not too free, until the reapplication of the dressing on the following day. Improvement may be noticed in a few days, but it is important to carry out the treatment regularly until the more serious characteristic symptoms disappear. Under this treatment the author claims the following results: (1) From the first application the patients acknowledge a feeling of well-being and marked relief. (2) A very abundant perspiration follows, at first neutral in reaction, but afterwards becoming acid. This is accompanied by marked diuresis, but no salivation. The amount of urine may rise to two or three litres in the twenty-four hours, and in acute nephritis even higher figures may be noted. (3) Under this treatment in acute cases the albumen disappears rapidly and the cure becomes completed. In chronic cases, although we cannot look for a cure, the albumen markedly diminishes, the œdema disappears and the general state of the patient is much improved.

On the Treatment of Tetanus.

R. T. HEWLETT. "The antitoxin treatment of tetanus."—*The Practitioner*, April, 1895.

A. A. KANTHACK. "On the value of the serum treatment in tetanus."—*The Medical Chronicle*, May, 1895.

On experimental grounds Hewlett considers the modern antitoxin treatment the most promising. As a remedy it ought to be administered as soon as the onset of tetanus is probable. Any distinct sign, such as stiffness of the neck, difficulty in opening the mouth, or even any considerable pain at the seat of injury, coming on without ap-

parent cause, a few days after an accident should at once lead to its employment. At the same time the patient should be placed in a darkened room and perfect quietness enforced. Abundance of easily digested food should be administered, if necessary through a stomach tube during chloroform anæsthesia. Local treatment, including if necessary free excision of the affected part, should not be omitted. Chloral may be used in sufficient doses to induce sleep.

Before estimating the value of this new treatment Kanthack endeavours to draw some conclusions as to the cause and mortality of the disease under old methods. The percentage of deaths, he thinks, is estimated most correctly by Roux and Vaillard, who calculate it at about 50 per cent. Generally, the severity of a case varies inversely with the length of the incubative period, and directly with the rapidity of the onset of the spasms. Examining, according to these considerations, the results so far obtained and published of cases in which antitoxin was used, it will be found that out of seven severe cases in which the incubative period amounted to seven days or less only one case recovered; on the other hand, in thirty-four mild or chronic cases only two deaths occurred. Summing up an exhaustive review he says that the serum treatment has not actually changed the prognosis in acute and serious cases, but judging from the accounts given of the milder cases, he thinks that in these it lessens the spasms, the pain and the distress, and that it has apparently reduced the mortality, but to what extent we are not yet able to estimate. The antitoxin is still on its trial; no decidedly acute or otherwise hopeless case has yet been really cured by it. Nevertheless, he thinks it our duty to use it, not only for the purpose of cure, but also with the view of prevention in those injuries which have been contaminated by dirt or earth and have not received immediate attention and thorough cleansing.

Pathology.

Gonorrhœa and the Gonococcus.

Klein, G. "Die Gonnorrhœa des Weibes."—*Münchener Medicinische Wochenschrift.* No. 23. June 4th, 1895, p. 534.

Turro. "Gonokokken Züchtungen und künstlicher Tripper."—*Centralblatt für Bakteriologie.* XVI. 1894.

Heiman. "A clinical and bacteriological study of the gonococcus."—*Medical Record (N. Y.),* June 22nd, 1895, p. 769.

That the gonococcus of Neisser is the causative agent in gonorrhœa is a generally accepted fact; constantly in undoubted cases of the disease in its earlier active stage in man it is to be recognized in the urethral discharge. But doubt still exists as to whether the presence in the urethral and vaginal discharge, and in yet other discharges, of small flattened cocci in pairs necessarily indicates the existence of the specific disease—whether the cocci seen may not be harmless or at most non-specific forms—and whether, for example, the vulvo-vaginitis of children, from which such cocci are obtainable in abundance, is in reality gonorrheal. In short, while under clinical conditions in which the symptoms are typical and point clearly to gonorrhœa, there is no difficulty in confirming the diagnosis by bacteriological study, in these doubtful cases in which confirmation is of the greatest importance, there are many who hold that it cannot be given by the bacteriologist, inasmuch as there are other diplococci which simulate those of gonorrhœa. There is, it is true, one test which would determine the specificity of the cocci—but this is one impossible ordinarily, namely, inoculation of the human healthy urethra.

That these objections have some foundation, is made manifest by the work of Turro and Heiman. Not a little interest was excited recently by Turro's article in the *Centralblatt für Bakteriologie,* in which it was pointed out that the gonococcus grows upon sterilized urine, and that the cultures obtained upon slightly acid media (in place of the alkaline media usually employed) will, when inoculated into dogs, induce a catarrhal urethritis from which the gonococci are obtainable. If this were so, we had the means of testing the specific nature of diplococci occurring in doubtful cases—a ready means of

completing the bacteriological diagnosis. Unfortunately other observers—on this continent Dr. Wright of Boston,* and Dr. Heiman—repeating Turro's observations have entirely failed to confirm them. But in repeating them Heiman obtained a diplococcus from cases of gonorrhœa, growing upon Turro's media, of the same size as the gonococcus, but differing from it in not being decolorised by Gram's method. Now the typical gonococcus, whether examined direct from the urethral discharge or obtained in pure cultures is so decolorised—and Turro would appear never to have applied this important test.

Hence the conclusion appears inevitable that the Italian observer, by his methods, isolated a non-specific form, and indeed Heiman found it to be harmless in man. Examining further into the matter he points out that posthitis or balanitis is most common in dogs, and that the discharge from the urethra contains cocci which (if I read Heiman's article aright) can easily be mistaken for the gonococci by preliminary microscopical examination. Under the circumstances, therefore, Turro's statements. to say the least, lack confirmation. Continuing his researches, Heiman examined the bacteriological fauna of the vulvo-vaginal tract in twenty apparently healthy children. In not one of them did he find a single diplococcus giving the reactions of the gonococcus, but in cases where there was a slight mucous discharge, and others in which there was simply enuresis, he found numerous pus cells containing diplococci resembling the gonococcus in size, appearance and all general characters, save that they were not decolorised by Gram's method, while a pure culture from one case, inoculated into the healthy urethra of a youth of 17, produced no effects. Bockhart, E. Frænkel and others, have also met with this form, and Heiman suggests tentatively that it is the cause of non-specific catarrhal colpitis. In three cases of vulvo-vaginitis, in two of which infection could be traced, and the cocci were found in the parental discharges, Heiman found diplococci giving all the reactions of the gonococcus, and a pure culture from one of the cases inoculated into an adult male of twenty-six, proved to be free previously from the disease, induced a mild attack of gonorrhœa with presence of the typical cocci in the urethral discharge.

The conclusion to be drawn is that the gonococcus can be diagnosed in discharges from both sexes by the following reactions :

I. The characteristic shape of the cocci and easy staining with ordinary aniline dyes.

II Their presence within the pus cells.

* J. H. Wright, *American Journal of Medical Science*, February, 1895.

III. Decolorisation by Gram's method of staining.

IV. Their capacity of setting up gonorrhœa when inoculated into the healthy human urethra.

Of these characters the first two are common to other forms, the fourth can rarely be tested, the third is the crucial test in ordinary.

Herein Heiman's careful and valuable work confirms the most trustworthy previous observations.

Employing the first three of these diagnostic features Klein points out that the gonococci may be detected with comparative ease in the external genito-urinary passages of the female. Gonorrhœa in the adult female especially affects the urethra and the cervix; from the latter it is frequently difficult to obtain the microbes, from the former they may often be obtained in great numbers, and contrary to what is usually held (that the disease of the urethra in the female heals rapidly) they may be obtained from cases in which clinically urethritis is no longer recognisable. But the gonococcus is not limited in its growth to cylinder epithelium. It has been found affecting stratified and peritoneal epithelium and even connective tissue—in periurethral tissue, in the connective tissue of the Fallopian tubes, and even in abscesses of the ovaries. Thus the clinical picture of gonorrhœal disturbances in the female may include vulvitis, kolpitis, salpingitis, oophoritis, cystitis, peritonitis and parametritis, while metastases due to the gonococcus present themselves in the form of monarticular arthritis in little girls, as in adults, of vaginitis, myositis, perineuritis, and even endocarditis in adults.* Sarfert has described a purulent mastitis presenting intracellular diplococci in an infected female, Frisch and others the occurrence of gonorrhœal catarrh of the rectum, which might in many of its characters be mistaken for syphilitic proctitis.

In children born of infected mothers, besides the well-known specific blenorrhœa, there have been recognised ulcerous stomatitis, associated with the diplococci, and gonorrhœal otitis media.

As to the prevalence of gonorrhœa in females, in Germany at least it would appear to be appallingly widespread, if Noeggerath's estimate that 80 per cent. of all females are affected approaches the truth. Even if Sänger is correct and only 12 per cent. of all women seeking the advivce of gynæcologists are gonorrhœal the figure is painfully high; yet Klein considers that more exact methods of examination prove this to be certainly below the truth.

* At the recent meeting of the Association of American Physicians Professor Welch cited the details of a case of gonorrhœal endocarditis (in the male) that had been investigated in his laboratory and had yielded pure cultures of the microbe.

Space forbids that I should touch upon the incidence of gonorrhœa in the male. Suffice it to say that the capacity of the microbe to develop lesions in various organs is being each month more surely determined.

From the above it is very evident that instead of being the cause of a strictly localized disease, as was held until recently, the gonococcus is in itself capable of originating most of the lesions which used to be considered sequelæ and of secondary origin, but which now we find to be direct consequences of the lodgement of the specific virus in other regions.

J. G. Adami.

Diseases of Children.

Diphtheria Antitoxin.

"Discussion on the employment of antitoxin in diphtheria," American Pediatric Society, seventh annual meeting, May 28, 1895.—*Archives of Pediatrics*, July, 1895.

"Discussion on diphtheria antitoxin," Association of American Physicians, tenth annual meeting, May 31, 1895.—*New York Med. Record*, June 15, 1895.

J. Gordon Morrill. "Immunising effects of antitoxin."—*Archives of Pediatrics*, July, 1895.

Holt. "" The use of antitoxin for immunisation."—*Archives of Pediatrics*, July, 1895.

Adolf Baginsky. "Der serumtherapie der diphtherie." (The serum treatment of diphtheria, being a review of the results obtained in the Emperor and Empress Frederick's Hospital for Children in Berlin). 8vo., pp. 336. Berlin, 1895.

There are few subjects which attract more attention at present from the medical world than does the treatment of diphtheria by antitoxin. Introduced rather more than a twelve month ago to the profession by Behring, after its value had been attested by bacteriological experiments in animals, and its action on man, as far as possible, verified by careful clinical observation, diphtheria antitoxin met, nevertheless, at the first with a cautious and somewhat hesitating acceptance.

The favoured observers who were able to make an early trial of the serum proclaimed results, which, with a few notable exceptions, acknowledged a more decided control over the symptoms and a decrease in the rate of mortality under the new treatment as compared with any other method yet adopted.

During the past winter, however, since the use of antitoxin became much more extended, and the sources of its supply more numerous, and its preparation in some instances perhaps less scrupulously exact, reports of many cases have been published in which it either altogether failed, or in which distinctly untoward symptoms attributed to the antitoxin have arisen. In a few cases it is stated that it has seemed to even hasten the unfortunate termination, so that a few

prominent clinicians, both in Europe and in America, have not hesitated to express opinions unfavourable to its use. With ourselves, partly owing to imperfection in the serum employed, partly perhaps to faulty dosage, and partly perhaps from our expecting the impossible, the results have been disappointing and our attitude has been one of hesitancy. It was with much interest, therefore, that we listened to the discussion, for the most part entirely favourable to this treatment, which took place both in the American Pediatric Society at its meeting in Hot Springs, Va., and in the Association of American Physicians' meeting in Washington. We note also the recent appearance of several monographs on this same subject, the most important, and by far the most voluminous, one being the report of Professor Baginsky on the results of a year's treatment under this method of all cases admitted into the Emperor and Empress Frederick's Hospital for Children in Berlin. During this period, from March 15, 1894, to March 15, 1895, 525 cases were admitted into this hospital and treated by the serum method; of these 83 succumbed (15.8 per cent.) In 11 cases the patients were so ill when admitted that they died within the first twenty-four hours, and manifestly deduction from the percentage should be made on this account. This mortality he compares with that of the three previous years, when of 993 cases treated, 430 died (43.3 per cent.) Very similar is the testimony of Bokai in the Buda-Pesth hospital (*Deutsche Medicinische Wochenschrift*, April 11, 1895), in which this writer reports 120 cases treated by means of Behring's serum with 31 deaths, a mortality of 25.8 per cent. This result he compares with the records of the same quarter for the three previous years, during which 337 cases were treated, with a mortality of 203, or 60.23 per cent.

With regard to such statistics the remarks of Dr. Welch, of Baltimore, in opening the discussion on this subject at the meeting of the Association of American Physicians, may be appropriately quoted: "Statistics," he says, "may be viewed from three standpoints—they either prove too much, and therefore nothing, or they leave the question in doubt, or they justify a favourable opinion." Opponents claim that the average cases this year are of a milder type than in previous years, and that many mild cases are included in these reports. They say also that owing to numerous articles appearing in the public press on the new treatment, parents send their children earlier to the hospital, and that they are, therefore, under more favourable conditions for cure than in the case of former statistics. That statistics should have their full value it is evident that the cases must be classified. More important than figures at

the present time are the personal impressions of careful and experienced clinicians gathered from observations at the bedside, and these in the great majority of cases are eminently favourable to this treatment. Baginsky says that severe cases which under other treatment, would, in his judgment, have died, have under the influence of the antitoxin steadily improved and got well, and that during a short period when the administration of the antitoxin had to be interrupted owing to a failure in the supply, the mortality rose at once to its former percentage. Bokai states that he is fully convinced of the value of the serum in true diphtheria, but that its value in cases in which a septic character is pronounced from the beginning is doubtful, and that it cannot be depended on to check the development of heart failure when that sets in. At the conference held in Munich, under the presidency of Prof. V. Ziemmsen, not one dissenting voice was raised against antitoxin. Heubner, of Berlin, emphasized the fact, that if a case was presented early for treatment, the prognosis under the antitoxin was good. but that in nearly all cases he noticed a favourable influence upon the course of the fever, and the disintegration of the membrane. He noticed no increase in the albuminuria nor extension of the disease to the lower air passages, provided these latter were intact at the time of admission. Widerhofer said that he took pleasure in expressing himself as even more enthusiastic now in regard to the serum than he was after his first hundred cases. Reuke, of Munich, said that from the first he felt he had no choice in the matter of employing the serum, so urgent was the need of some radical change in the treatment of diphtheria ; now he was willing to be regarded as enthusiastic in regard to the antitoxin treatment.

Clinical impressions, says Dr. Welch, are fortified by the results of post-mortem examinations, which almost invariably show an absence of fresh extension after the commencement of the injections. Baginsky in his book also draws attention to the testimony to be gained by a comparison of the results of tracheotomy and intubation before and after the introduction of this treatment. Before the introduction of the antitoxin a large number of both tracheotomies and intubations were performed in the hospital. Of 1,258 cases of diphtheria occurring between 1890 and 1894 553 cases had to have either intubation or tracheotomy performed on account of laryngeal stenosis. Tracheotomy was in general preferred because in more than 50 per cent. of those intubated, tracheotomy had afterwards to be performed. After the treatment by antitoxin was begun this was changed. The number of operations became less, and intubation became the full equivalent of tracheotomy and was generally

preferred, the latter being reserved for the worst cases, or for purposes of euthanasia simply. In only one case did laryngeal stenosis develop after the antitoxin treatment had been begun.

In reference to the *modus operandi* of the antitoxin, Dr. Welch says that according to one view its antidotal action is of a chemical nature, destroying or neutralizing the toxine generated, but the more generally received opinion is that its action is of a vital character, and is effected through the agency of the cells which are rendered more resistent and less tolerant of invasion. Against the former view is the fact that this treatment in no measure prevents the appearance of post-diphtheritic paralysis. According to the latter view, the action of the toxine may be looked upon as the natural mode of cure, for it is probable that recovery ensues under ordinary conditions by the development in the blood of the antitoxin, a process which is only hastened and fortified by the injection of artificial serum. That the antitoxin is not always successful, may be owing to the fact that there is a quantitative relation between the toxine and the antitoxin, and we have at present no means of ascertaining how much of the former may be circulating in the blood. In those where the antitoxin appears to have absolutely no effect, and the case goes on from bad to worse, it is probable that the cells of the patient, for some reason not yet understood, fail to respond to its action.

Among the after effects which have been attributed to the employment of antitoxin, the most important are the following: albuminuria, enlargement of the lymphatic glands, a form of arthritis, various exanthems, minor degrees of cardiac disturbance, and a rise in temperature, sometimes with fluctuations suspiciously like that of septicæmia. With regard to all of these, the general verdict is that they are but temporary in their manifestations. The symptoms are rarely alarming, and as Dr. Welch says they cannot outweigh the benefits to be derived from the use of the serum. In reference to the occurrence of albuminuria, which has been asserted to follow the employment of the antitoxin, Prof. Baginsky says that he cannot accept such a view. Among the 993 cases of diphtheria treated without serum from 1891 to 1894, albuminuria was met with in about the same frequency as among the 525 cases treated with serum, but clinical evidence of nephritis in the shape of casts, &c., appeared more frequently in the first series.

	Total Number of Cases.	Albuminuria.		Nephritis. (Clinical.)		Nephritis. Post-mortem.	
		Cases.	Per Cent.	Cases.	Per Cent.	Cases.	Per Cent.
Without serum	993	417	42·00	256	25·78	162	16·31
With serum.....	525	215	40·95	66	12·57	83	15·80

The only criticism which can be applied to this statement is that a more severe standard appears to have been applied to the changes in the kidney in the cases treated with serum than in those treated without serum.

In this connection we may quote also the experience of Dr. Morrill, of Boston, as given in a paper read before the American Pediatric Society on the "Immunizing Effects of Antitoxin." "The urine of 82 children was very carefully examined with reference to the effects of antitoxin on the kidneys, and the result of 540 examinations may be briefly stated as follows: In 20 per cent. no change whatever was detected. Of the remaining 80 per cent., those which had been free from albumin previous to immunisation showed a slight trace—in most instances the slightest possible amount, which could be detected only when placed in front of a dark background. this was only noticed within 24 or 48 hours after injection. In cases where albumin had been present before the use of antitoxin there was a very slight increase of the amount. In no case was there any diminution in the amount passed, or any evidence of failure to eliminate properly."

Among the more important statements made by Prof. Baginsky are the following: Injections should be given under strict aseptic precautions, subcutaneously. The dose should be dependent on the time of the administration, whether early or late in the course of the disease; it is also dependent on the age of the patient and the severity of the case. From 600 to 4,000 antitoxin units should be employed. It is best to administer a full large dose at once, but an additional injection is advisable in an obstinate case. The action of the remedy is visible in the limitation of the local process, in the reduction of the fever and in the improvement of the general condition. Antitoxin is only effectual against the toxin of Lœffler's bacillus, which must be regarded as the cause of diphtheria. Diphtheritic symptoms may be produced by various forms of cocci, without the presence of this bacillus, but such cases as a rule do not present the same severe symptoms, as those in which the bacillus is found. For such cases he proposes the name "*Diphtheroid*." Although mixed infections are favourably affected by the antitoxin, they demand rather larger doses.

In reference to the immunising effects of antitoxin, Dr. Morrill, in the interesting paper, above referred to gives us the results of his experience in the Boston Children's Hospital. He says: "With regard to the protection afforded by antitoxin (in doses of 10 cc. for children of 10 years or over) our experience has tended to show

that the serum, when fresh, can be relied upon to immunise against anything resembling clinical diphtheria for a period of thirteen days, and probably for a longer space of time. In no instance was the bacillus detected in the nose and throat of any child, who started with a clean record, in a shorter time than that just mentioned. This last point, if eventually established, is of practical importance as showing that an immunised child is not only safe from diphtheria, but is also safe as concerns this for a definite length of time.

A. D. Blackader.

Laryngology.

Adenoid Growths in Children.

Euston Smith. "Adenoid growths in children."—*Lancet*, May 25th, 1895.

The author deals with the subject as of special interest to the general physician, considering the large number of derangements which may be set up by the presence of adenoid growths in the naso-pharynx. The frequency with which adenoid growths are met with in children three or four years old and upwards is a matter of every day observation, but it seems not to be so well known that they are equally common in infancy. At this early stage the patient is rarely seen by a throat expert, and unless the child's pharynx be explored with the finger the growths will often be overlooked by the general physician, for it is perhaps exceptional for them to give rise to the ordinary symptoms of nasal obstruction.

In an infant the growths should always be suspected if the child's nose be broad at the bridge and faintly dimpled on each side at the upper border of the inferior lateral cartilages, and especially if when the chest is uncovered any retraction be noticed in the inferior region of the thorax. In childhood symmetrical retraction of the infra-mammary regions and depression of the ensiform appendix owe their origin, with few exceptions, to naso-pharyngeal obstruction. In marked cases, where little air enters by the nose, the nares are small and the alæ flattened, probably from disuse of the organ as an air passage. In such children other symptoms may be met with: the hard palate is exceptionally high, the tonsils are overgrown, and examination of the auditory meatus shows a deep depression of the tympanic membrane. In infants who suffer from this form of nasal obstruction one of the commonest consequences is snuffling in the nose with much mucous secretion. Non-syphilitic infants who snuffle are almost always the subjects of adenoid granulations. They seem never to be free from coryza, and often sneeze violently and discharge quantities of thick mucus from the nose. With this they may be hoarse, and from the persistance of these symptoms are often suspected wrongly of inheriting a venereal taint.

Another point which the author draws attention to is the effect upon the lungs. In infants and young children suffering from

adenoids in the vault of the pharynx, signs of collapse at the upper part of the lungs are present, a high-pitched percussion note at the infra-spinous fossa without notable alteration of the heart sounds is commonly due to a patch of pulmonary collapse and is very suggestive of adenoid growths, especially if the child at that time is not troubled with a cough. Deafness is also known to be one of the very frequent results of the existence of adenoids, and there is no class of cases which having adenoids as the cause of the deafness responds so readily to treatment and is attended with the best results. Many cases of either acute or chronic suppurative otitis media have adenoids as a cause, and it is only by the removal of the cause that such cases recover.

Asthma and nocturnal incontinence of urine are mentioned as rare sequences to adenoids. Of 1,000 cases seen in private and hospital practice the writer has met with only one case in which the asthma and three cases in which the nocturnal incontinence of urine were really cured.

Another symptom which the author at some length calls attention to is a loud crowing or croaking sound which accompanies the breathing and is known as infantile respiratory spasm. This symptom, the author maintains, is due to the presence of adenoid vegetations in the vault of the pharynx. Such a view the writer is not able to corroborate and questions very much the relation of cause and effect in these cases. Amongst the writer's 1,000 cases of adenoid growths in the vault of the pharynx he has never met with respiratory stridor having such a cause. The writer has seen two cases of infantile respiratory stridor, but neither case had adenoids, nor did the digital examination precipitate any such attack, which would undoubtedly have occurred did such spasm have its origin from irritation in the vault of the pharynx, and the writer believes in the theory expressed by Leman and Horsely that it is due to cortical irritation.

H. S. Birkett.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

APRIL, 1895.

CANADA MEDICAL RECORD.

Abstract of a paper entitled "Observations on the treatment of Fibroids of the Uterus," p. 145.

LA CLINIQUE.

En recriminant—P. E. Prévost, p. 86.

Influence des dents sur le caractère et la santé—M. A. Lemieux, D.D.S., L.D.S., p. 87.

MAY, 1895.

MEDICAL NEWS (PHILADELPHIA), MAY 4TH, 1895.

(1.) Normal and surgical anatomy of the vermiform appendix—Hadley Williams, London, Ont., p. 483.

THE CANADIAN PRACTITIONER.

Primary carcinoma of the gall bladder—J. G. Graham, Toronto, p. 319.

Carcinoma of the scalp—H. J. Hamilton, Toronto, p. 327.

Treatment of diphtheria by Antitoxic Serum—G. Clingan, Toronto, p. 332.

Operation for the removal of Ovarian Tumours (concluded)—A. Vander Veer, New York, p. 336.

ONTARIO MEDICAL JOURNAL.

Resumé of researches on the pathogenic organism of malaria—Herbert J. Hamilton, p. 331.

Puerperal fever—G. Gilbert Gordon, p. 333.

Clinical note—scaly eruptions—G. B. Smith, p. 338.

Clinical notes—C. J. Chapman, p. 339.

CANADIAN MEDICAL REVIEW.

The treatment of diseases of the Fallopian tubes—A. Lapthorn Smith, Montreal, p. 159.

LA CLINIQUE.

Un nouveau traitement de l'épistaxis—F. X. L. de Martigny.

Morphinomanie—Le Rouge.

MARITIME MEDICAL NEWS.

Case of crossed hemianalgesia—M. A. B. Smith, Dartmouth, N.S., p. 95.

The reaction of the Urine—A. Halliday, Stewiake, N.S., p. 98.

(1.) This paper is based on results drawn from various post-mortem examinations and from practical work in the dissecting room, and the author arrives at the following conclusions:—The development of the alimentary canal readily explains abnormal positions. At the twelfth and sixteenth weeks there seems to be no difference in size between the base of the appendix and the cæcum. Prior to the sixth

and seventh month the cæcum and appendix lie well up in the abdomen, behind the liver or median line. The appendix is nearly always found covered by peritoneum, and in most cases possessed of a mesentery. There is generally a well-marked muscular circular coat. The relative measurements between the exit of the appendix and the ileum are pretty constant. The appendicular artery lies behind the distal portion of the ileum, and is accessible to pressure. The wall of the appendix is always formed by anterior band of muscular fibres from the cæcum. The appendix is readily filled with air from the cæcum, (in only a few cases did this fail). From its position in a pocket-like cavity it is accessible to pressure from an impacted large bowel. Fæces collected in the lumen of the appendix do not necessarily set up any pathological disturbance. Air or fluid injected into the large bowel invariably rotates the cæcum outward, in close relation to the anterior superior spine and crest of the ileum. In this experiment the appendix is often dragged into abnormal positions and twisted on itself. When ulceration takes place, with extra-peritoneal formation of pus, two layers of serous membrane are involved if the appendix be intra-peritoneal Anatomically it is impossible for pus to separate the layers of the appendicular mesentery. The lowest part of the abscess cavity in the recumbent position is two or three inches on a lower level than the incision in front and above Poupart's ligament. An intimate relation sometimes exists between the tubes and ovaries with the appendix. In such a case suppurative appendicitis and hæmatosalpinx were both present, though no distinct suppurating tract could be traced between them. A swelling in the right iliac fossa will give rise to similar symptoms from like anatomical relations to important viscera, vessels and nerves. When a large collection of pus has formed in the iliac fossa a tender spot may generally be felt in the lumbar region on the crest of the ilium, close to the sacro-iliac articulation. A downward incision at this point will be sufficient to evacuate the abscess.

Reviews and Notices of Books.

The Surgical Diseases of Children and their Treatment by Modern Methods. D'Arcy Power, M.A., M.B., Oxon., F.R.C.S., Eng.. Demonstrator of Operative Surgery at St. Bartholomew Hospital; Surgeon to the Victoria Hospital for Children. Chelsea; Examiner in the University of Durham; Member of the Conjoint Examining Board of The Royal College of Physicians (Lond.) and of Surgeons (Eng.); with Illustrations. London : H. K. Lewis, 136 Gower Street. 1895.

The division of labour going on in surgery has called forth this book. It is a useful book. Many of the articles are full and thorough. Especially the one on tubercular disease of the spine, illustrated by some instructive diagrams from Hoffa's Lehrbuch.

Hernia is also dealt with in a very clear way, the author favouring operation for the radical cure in a large percentage of cases.

In the treatment of osteo-myelitis a clear description is given of pathology and diagnosis. Many surgeons, however, would be a little more radical in operating, and would hardly feel that they had done their duty in cutting through the soft tissue to the bone where the infective focus is still deeper, but would at once apply the trephine and get at the real seat of the disease.

In a book devoted to the surgical diseases of children, one would expect to find particular attention given to those conditions requiring especial surgical attention in the early years of life, yet club foot is scarcely more than mentioned, and the general practitioner seeking information here on that important subject would find himself compelled to consult some larger work, not specially devoted to the surgical diseases of children.

The same may be said of the article on congenital dislocation of the hip. Sufficient information is not given to enable one, from what he can learn from this article, to advise well much less operate well.

With the exception of one or two deficiencies of the above character, the book is well written, and will form a valuable addition to any medical library.

G. E. A.

The Treatment of Wounds, Ulcers and Abscesses. By W. Watson Cheyne, M. B., Ed., F.R.S., F.R.C.S., Professor of Surgery in King's College; Surgeon to King's College Hospital, and Paddington Green Children's Hospital, London. Philadelphia : Lea Brothers & Co. 1895.

This will be found to be a most useful book to the general practitioner,

as it gives directions in considerable detail for the carrying out of the most important methods in the treatment of those conditions mentioned in the title page.

Healing of wounds by first intention, by blood clot, and granulation are described. Emphasis is very properly laid upon the necessity of avoiding as far as possible injury to the tissues by rough handling.

The degree and intensity of infection depending upon the number and virulence of the organisms which enter.

Bruised tissues have a lowered vitality, and hence more easily succumb to invading micro-organisms.

Disinfection of instruments, field of operation and operators hands and dressings are fully described.

We note the author's preference for sponges over gauze pads. The objections to the latter seem rather weak.

The author advises early opening of acute abscesses without waiting for distinct fluctuation, and drainage without washing out.

Early opening and drainage of acute empyema before the lining is bound down by firm adhesions is advised.

A careful following of the directions given should ensure good results.

G. E. A.

The Principles of Bacteriology. A Practical Manual. By A. C. Abbott, M.D. Second Edition. Philadelphia: Lea Bros. & Co. 1894.

As a practical manual, it may safely be said that the first edition of Abbott's little work was far in advance of any other text-book of bacteriology published in our language. This second edition, with all its extensions and improvements, is again equally far in advance of the first, and is in fact invaluable to the student from its precision and the clear, succinct way in which the best methods and the features of the various pathogenic bacteria are described. It is unnecessary at the present day to say more in its praise. In our eyes the only important omission is due to the fact that Dr. Abbott has been philologically honest, and has employed the term bacteriology in its narrow and strictly correct sense, instead of permitting it to include the whole field traversed by the bacteriologist; consequently he has nothing to say concerning the pathogenic moulds, their properties and modes of growth, nor again concerning the minute parasitic animal forms—the malarial organism or organisms, and the sporozoa. This we cannot but regard as a regrettable omission. Chapters upon these subjects are required by the student, and if they are not included in a text-book of bacteriology, it is questionable where they should be found. It is true that much of our bacteriological nomenclature is faulty; the use of the term "bacteria" alone is most ambiguous. We want some term which shall indicate the study of all minute or microbic forms of life. "Microbiology" might be employed, yet it immediately institutes comparisons with "biology" to its own dis-

advantage. Perhaps it will be well to retain the old term, with the reservation that bacteriology is understood to include more than the study of bacteria. In any case, we trust that in the next edition of this admirable manual Dr. Abbott will do us the most useful service of adding the chapters here indicated. A.

The Cambridge Natural History, Edited by S. F. Harmer, M.A., Superintendent of the University Museum of Zoology, and A. E. Shipley, M.A., University Lecturer upon the Morphology of Invertebrates. Vol. III. Mollusca and Brachiopods, by Cooke, Shipley and Reed. London and New York: MacMillan & Co. 1895.

There are not a few of our number who, in the intervals of practice, pursue as a hobby the study of some branch of natural history and find in it both bodily and mental recreation and an ever fresh delight. We would cordially call the attention of such to the series of volumes now being edited at Cambridge, of which the first to appear lies before us. The series is to deal with the natural history of all species of animals, from the protozoa to the mammalia, each important subdivision being treated by a recognized authority. For long there has been need of an authoritative Natural history, and judging from the volume before us, the want is to be most satisfactorily supplied. It is a large and handsome volume of more than 500 pages, admirably illustrated, mainly occupied by the Rev. A. H. Cooke's description of the Mollusca. So far as we are able to judge, both this and Mr. Shipley's article on the Brachiopoda are all that a natural history ought to be. The amount of curious and suggestive information in the first article is remarkable. Not only are the habits, geographical distribution and general economy of the various forms treated at a length never before attempted in any previous Natural history, but the bye-ways of the subject are explored. There are some admirable pages upon the cult of the oyster and upon its culture, from the days of a certain Roman Sergius Orata, who flourished in the first century, B.C., and Juvenal's epicure who

> "Could tell
> At the first mouthful, if his oysters fed
> On the Rutupian or the Lucrine bed
> Or at Circeii.

There are other pages upon the use of shells as money with a discursion upon wampum. Others again upon the artificial cultivation of snails and upon pearls and pearl fisheries, so that even to us to whom zoology, we fear, has become little more than a memory, what with the broad generalisations upon the habits of the mollusca, and the mine of out of the way information it contains, the work has proved in the highest degree entertaining. Zoology, it would seem, is passing through an interesting development. But a few years ago a name was only to be made by microscopical and embryological studies; now the younger workers are discovering that fuller and more satisfactory results are to be obtained by

following Darwin and Wallace, and investigating the various forms of life in connection with their environment. The publication of works such as this will notably aid in stimulating others to study and comprehend the living world around them. A.

Affections Chirurgicales des Membres. Statistique et Observations par Docteur Polaillon, Chirurgien de L'Hotel-Dieu, Professeur agrégé à la Faculté de Médicine de Paris, Charge de cours de Clinique Annexe, Membre de l'Acadèmie de Médicine. Paris—Librairie Octave Doin, Editeur, 8 Place de L'Odéon. 1895.

Dr. Polaillon has followed up his book on Regional Surgical Statistics by the publication of a large volume on surgical affections occurring in his practice during an uninterrupted period of 14 years. He has divided his work into surgical diseases of the extremities and of the trunk, and again into traumatic and organic diseases and malformations, and finally tumours and infectious diseases. As might be anticipated from the large opportunities and length of time (a period of 14 years) Dr. Polaillon has in this book put before his readers an amount of clinical material rarely found in one volume. Many of the cases are reported very fully and a great deal of valuable information is to be derived from the perusal of this volume. G. E. A.

Text-Book of Diseases of the Kidneys and Urinary Organs. By Prof. Dr. Paul Furbringer, Director of the Friedrichshain Hospital, Berlin. Translated from the German with Annotations by W. H. Gilbert, M.D., Physician in Baden-Baden. In 2 vols. Vol. 1. 800. London: H. K. Lewis.

This work will well repay careful perusal. It is from the pen of an able, experienced and hard-working physician. We are pleased to see that the author's classification of Bright's disease is of a clinical character. In the present state of our knowledge this is the only non-confusing division of this intricate subject. The recent attempt to make many sub-divisions of Bright's disease leads to confusion, and does not help in any way in more clearly pointing out indications for rational therapeutics.

The present volume is free from such blemishes.

We await with interest the appearance of the second volume.

J. S.

On the Relations of the Diseases of the Spinal Cord to the Distribution and Lesions of the Spinal Blood-Vessels. By R. J. Williamson, M.D. London: H. K. Lewis. 1895.

This small volume is made up of a series of interesting notes which appeared in the *Medical Chronicle*, of Manchester. They are an able *resumé* of the views held at present as to the nature of the various acute and chronic diseases of the spinal cord.

J. S.

The Year-Book of Treatment for 1895. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co. 1895.

This very useful volume maintains its high standard. It deals with all the more important practical therapeutics during the past year.

J. S.

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Typhoid Ulcer; Perforation (?) : Operation ; Death ; Cerebral Cyst ; Operation ; Recovery. By B. Merrill Ricketts, Cincinnati. Reprinted from the *Cincinnati Lancet-Clinic*, April 6th, 1895.

Dislocation and Double Fracture of the Upper Third of the Humerus. By B. Merrill Ricketts, M.D., Cincinnati, Ohio. Reprinted from *The Journal of the American Medical Association*, September 8th, 1894.

The Treatment of Laryngeal Tuberculosis by the Application and Submucous Injection of Creosote. By Walter F. Chappell, M.D., M.R.C.S. Reprinted from the *New York Medical Journal* for March 30, 1895.

Infection and Immunity with Special Reference to the New Diphtheria Anti-Toxine. By Charles Russell Bardeen, B.A., Assistant in Histology, Johns Hopkins University. Reprinted from *The School Bulletin.*

Aseptic Prophylaxis of Asiatic Cholera : Arsenization. By Reginald Barkley Leach, M.D., Member American Public Health Association, etc., etc.

Third Annual Report of the Dairy Commissioner for the Dominion of Canada for 1892-93.

Correspondence.

To the Editors of The Montreal Medical Journal.

Vienna, March, 1895.

The thought that some readers of your Journal may be interested in hearing of the work in the hospitals of Prague and Vienna prompts the present letter, and the hope that it may be helpful to some who are intending to visit the Continent to continue their medical studies leads me perhaps into more detail than will be interesting to those who have no such plan in mind.

In order that time may not be lost, some study of the language is necessary before coming, and residence for a time at first in a German town is to be recommended before going to the centres, in most of which English-speaking students are found.

Prague, though not a German city, affords special advantages in the facilities for learning the German language. Here this language is free from such dialects as one unfortunately hears in Vienna, and here also but few English-speaking people are to be found while medical students from America are seldom seen in the institutes or hospitals. And other advantages of this place, apart from those already mentioned, are its natural beauty, its various marks of antiquity and its historic interest, not one of which are to be depreciated by a visitor in Europe.

As regards the time to come, it seems to me that the winter semester affords the most favourable opportunities. Of course such a question is decided by the convenience of the individual, but in talking with those who have observed the work in both semesters the opinion seems to be general that the winter semester commencing in October is by all means the better.

It was on the first of October that we began work in Prague, and as we were recommended to enregistration in the university we obtained, by the payment of a small fee, such privileges in the hospital and institutes as were accorded to Austrian students. Besides such work, special instruction is obtainable from private docents and first assistants. But in Prague, while the material is abundant and the instruction good, they are not able to give courses at a moderate fee, since the number receiving them is small. This is a disadvantage. Notwithstanding this disadvantage, however, there are many favourable conditions secured by a short stay in Prague. In addition to

those already mentioned let me speak of the work in the Pathological Institute. First of all, every one who comes from America, we believe, is sure to receive a hearty welcome from Professor Chiari, whose cordiality and ready helpfulness are always apparent in his dealings with those who show an interest in the work in which he seems to take so much delight. The material for examination in the department of pathological anatomy is plentiful, and many interesting sections were seen.

The General Hospital, das Allgemeine Krankenhaus, of Prague is now a very old and not at all a modern building, far behind like American institutions in its appointments and furnishings. In its various apartments over fifteen hundred patients are under treatment, while the out-patient departments (ambulances) are daily largely attended. The general surgical department is under the direction of Prof. Wild since Prof. Gussenbauer received the appointment to the Klinik of the late Prof. Billroth.

The division of internal medicine comprises two kliniks, the second of which is that of Professor V. Jaksch. A few words concerning this professor and author, whose work on clinical diagnosis is so generally circulated, may not be out of place just here. Professor Jaksch is Dean of the Medical Faculty of the German University at Prague and Professor of the Second Klinik in Internal Medicine. He was at one time assistant in the clinic of Professor Nothnagel, of Vienna, and was appointed to his present position about seven years ago. A man of middle age, he is possessed of a high degree of energy and activity, but unfortunately for the young student of German he is rapid and often not clear in his speaking. Several cases of interest were shown in this course. Two of the most striking may be briefly referred to, and inasmuch as they had so many points in common reference to one will suffice for both. They were cases of Argyria occurring in men aged fifty-five, whose occupation for the past fifteen or twenty years was that of making ornamental glass, staining it with different silver solutions. In the process they needed to draw the solution into long tubes held in their mouths. They made no complaint, nor had they experienced any ill effects during the years while the pigmentation was increasing. An extract from the notes taken in the clinic will serve to put the appearances presented before your readers. There was intense pigmentation of all visible surfaces, skin and mucous membranes alike. As one observed the face and head they seemed of an intense bluish-grey colour, which deepened over the nose and forehead and involved the exposed mucous membrane of mouth and eyes so that

scarcely any difference of colour was discernible between these parts and the skin. The surface shone as the light fell upon it, and the hair, once of deep brown, seemed to share in the general glancing bluish-grey pigmentation. The mouth, tongue, gums, uvula, epiglottis were almost as deeply pigmentated as the skin. The teeth were black. As one went towards the extremities the depth of pigmentation diminished. Nothing further was remarkable about these cases, with the exception that one was a subject of arterial sclerosis, but this was not referable to the action of silver.

Briefly stated the following may be counted as advantages of attending this clinic of Professor Jaksch, apart from becoming acquainted with this clinician :

1. One has an opportunity of seeing a large number of cases in making the visit with the assistants.

2. Careful attention is given to the examination of excretions, secretions and the blood, and clinical chemistry is emphasized here.

3. One is frequently able to follow a case through a close clinical examination, to observe its progress, know the clinical diagnosis, and also to see the section and anatomical diagnosis. This is a very important advantage and most valuable as a means of instruction.

Professor Huppert, in the Clinical institute, gives a very valuable course in pathological chemistry and welcomes students to his laboratory.

Professor Ganghofuer, of the Franz Joseph Kinderspital, has charge of the medical division of the same and has been carefully observing the effects of heilserum in cases of diphtheria. We were afforded the privilege of seeing this remedy applied in several cases, and also heard his report, an extract from which we give below with portions from reports of other observers.

Far better facilities for every kind of medical work are afforded one in Vienna. Here we find the regular holding of courses which are altogether attended by English-speaking physicians. The instruction is generallly good, the material in ample quantity and variety. The clinics are so grouped that no time is lost in going from place to place, and the numbers attending make the fees lighter, the general charge being a gulden (forty cents) per hour.

(Continued.)

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Cystic Fibroma of Right Iliac Fossa—Drs. Gardner and Adami.
Myxo-sarcoma of the Ovary—Drs. Gardner and Martin.
General Carcinomata—Dr. C. F. Martin.
Late Recurrence of Mammary Cancer—Dr. F. J. Shepherd.
A Case of Traumatic Tetanus with Recovery—Dr. J. C. Cameron.
Anæsthesia in Diminished Breathing Area—Dr, G. G. Campbell.
Discussion on Erysipelas—Drs. Hingston, Adami, Roddick and others.

Stated Meeting, April 19th, 1895.

G. P. Girdwood, M.D., President in the Chair.

Cystic Fibroma of the Right Iliac Fossa.

Dr. J. G. Adami exhibited the specimen which he described as follows :

The tumour, a fibro-sarcoma lymphangiectodes (areolar fibro-sarcoma) of the fascia over the iliacus muscle, is the size of a grape fruit, roughly after hardening $4\frac{1}{2} \times 3 \times 2\frac{1}{2}$. It possesses a well defined and fairly thick capsule and upon section presents numerous cavities of various sizes, so that first upon removal it had in part a honey-combed appearance. When fresh these cavities were in the main filled with a straw colored thin transparent fluid. This has become coagulated in the process of hardening and is recognisable as a yellowish gelatinous substance. In some of the cavities there was more or less shrunken white clot.

Added to this, the cut surface was mottled, and presented darker areas of various sizes where there had been hæmorrhage into the tissue of the tumour.

The stroma in between these cavities and hæmorrhages had a white fibrous appearance and was fairly firm. Examined microscopically the tumour showed itself to be a fibro-sarcoma lymphangiectodes. The capsule was formed of well developed old fibrous tissue of a laminated type. This merged insensibly into more fasciculated and more cellular fibrous tissue, the strands of which were in parts so cellular as only to be so described as fibro-sarcoma, or indeed as spindle-celled sarcoma. In other regions there was mucoid infiltration, in others following probably upon the hæmorrhages the tissues were disorganized and necrosed. The numerous spaces filled

with fluid and white thrombi were clearly dilated lymph channels ; they possessed well defined edges and a distinct lining of flattened endothelium.

We have, therefore, to deal with an aberrant fibroma—aberrant in position and in structure. It closely resembles in every respect the fibroma lymphangiectodes of the uterus, and I should like to ask Dr. Gardner if there is the slightest possibility of this being a transplanted pedunculated sub-serous uterine fibroma.

I judge from the note accompanying the specimen that this is improbable, not to say impossible, in that there was so clear an extension of the fascia covering the iliacus over the tumour. The probability is then that this developed from the sub-serous tissue above the iliacus, or from the inter-muscular connective tissue, and as such the tumour is to be classed as an atypical areolar fibroma; it is interesting to observe how closely this can simulate the condition more usual in the uterine fibroid. Cystic fibromata such as this have been found even in so dense a tissue as bone, the cysts being evidently dilated lymphatics.

The specimen is of further interest as illustrating what I had to say recently concerning the difficulty of determining the difference between mucoid and œdematous degeneration of fibromata and lymphangiectatic fibromata. In this specimen both conditions are present, and in parts only can the difference be made out, but in these parts it is very clear.

Dr. Wm. Gardner said that the tumour had grown very slowly. He had seen the patient six years before and the tumour had not increased very materially in size in that time. It lay in the right iliac fossa with the iliac vessels on the inner side and was intimately connected with the iliacus muscle, some strands of which were adherent to the mass. The general health of the patient had been unaffected, the only symptoms were those due to pressure upon the anterior crural and genito-crural nerves. The recovery after operation was uneventful.

Dr. Alloway asked if there was any direct connection between the growth and the posterior wall of the pelvis. He understood that cystic fibromata of the kind exhibited here were only found in subperitoneal growths of the uterus The present case was interesting as an exception to the rule.

Dr. Gardner, in reply to Dr. Alloway, said that any connection between the tumour and the uterus or ovaries was entirely impossible. It had no connection with bone at all, lying in the iliac fossa between the aponeurosis of the iliacus muscle and the muscle itself.

Myxo-Sarcoma of the Ovary.

Dr. C. F. MARTIN after exhibiting the specimen described it as a large, heavy, irregularly oval encapsulated tumour weighing, after the loss on section of about 20 ounces of thin serous fluid, 13 lbs. 5½ oz. In length it measured 28 cm. The circumference was roughly about 85 cm. The tumour was of firm consistence on the whole, though certain areas were softened through degenerative changes.

The surface of the growth was of a reddish drab colour, intermingled with patches of a darker, more bluish tint, these latter corresponding to the degenerated portions. Large veins traversed the growth, some being thrombosed, while on the more convex edge of the tumour were two catgut ligatures, surrounding evidently the pedicle. Numerous loose masses of thin fibrous tissue were hanging in shreds from the mass, where apparently adhesions had existed to surrounding tissues and organs.

Section through the greatest diameter of the tumour showed its widest portion to be of extreme density, except for the presence of several cystic dilatations of various sizes up to those having a diameter of 8 cm. and 7 cm. These latter were of two varieties – the one smooth walled and more longitudinal in shape, while the other showed rough, ragged masses adhering loosely to the walls, the remains of a previous degeneration, *i.e.*, portions of tumour mass had undergone degenerative softening and partial absorption, leaving behind at the time of removal these raggedly walled cysts. Dr. Martin said that the dilated portions with smooth walls were probably to be regarded as lymph cysts, so common in tumours of this kind, though he was unable to discover any evidence of aggregated endothelial cells.

In the opposite and smaller pole of the growth there was much softer tissue, due likewise to the degenerative changes and cystic formations above mentioned.

Sections were taken from various portions of the growth, and of these the majority presented collections of small undeveloped spindle cells arranged closely together in the manner of an ordinary spindle cell sarcoma, while interspersed throughout was a generous distribution of small round cells, and in some places fully developed fibrous tissue cells. Other sections showed some degeneration with the presence of the characteristic stellate cells of tissues which undergo mucoid change : so that the tumour may be regarded on the whole as a myxo-sarcoma. Sections from the degenerated areas showed the usual changes which occur under such condition.

This tumour, then, being a myxo sarcoma, was interesting for sev-

eral reasons: Firstly, inasmuch as sarcomata of the ovary were by no means common, and according to Schroeder's statistics form only 1.5 per cent. of all ovarian tumours. In the second place its size was certainly unusual, though occasionally sarcomata as large as an adult head were placed on record.

Microscopically it did not present any special feature, the spindle celled variety, with some admixture of small round cells, being that commonly found.

Dr. Wm. Gardner said that the history in this case was very vague, not being readily obtainable. The patient stated that she had first noticed the tumour four years ago as a small lump, but in all probability it had been present before that. There was great emaciation, which was stated to have commenced six months previous to the operation, but had made more rapid progress during the six weeks before operation.

Examination before the operation showed an exceeding degree of density and immobility of the tumour, the hardness being such that it suggested the presence of bone, as the speaker had occasionally noted in dermoid cysts. Vaginal examination showed the mass to be wedged in the pelvis. He had approached the operation with uncertainty, thinking that the tumour would be adherent to the parieties but this was not the case, and except for omental adhesions and a corona of intestines along the upper part, there had been no attachments to work through. The pedicle was small and easily managed, and apart from stripping the peritoneum off a small portion of the adherent intestine the removal had been accomplished without injury to any part. The other ovary was also found diseased; it was about the size of a pullet's egg and was dense. Recovery had been absolutely without any drawbacks.

General Carcinomata.

Dr. C. F. Martin read the Pathological Report of this specimen, which will appear later.

Late Recurrence of Mammary Cancer.

Dr. F. J. Shepherd reported the following case:

I was called to see a woman æt. 45, mother of six children, a patient of the late Dr. George Ross, on November 7th, 1888, and found that she was suffering from a tumour the size of a small egg, situated in the lower zone of the left breast. This was quite movable, nipple slightly retracted, but the glands in the axilla were enlarged. Patient first noticed the growth nine months before, when it was quite small. It had never been painful. The operation of removal of the

breast was performed on November 8th, 1888. The breast and considerable portion of skin was removed and the fascia over the great pectoral, the glands of axilla and the tissue about them were freely removed. The patient's wound healed by first intention and she was about in ten days. Was not consulted again until January, 1895, when she came to me for a small hard, movable lump, two inches above the middle of the clavicle, noticed a few months before. This was tender and occasionally painful. A few days later removed this secondary growth, and as Dr. Adami will tell you it was carcinomatous.

This case shows conclusively that the three years' limit is not sufficient to declare a person free from the danger of recurrence, and also shows that good results in comparatively advanced cases can be obtained without the very severe operations recommended by operators during the last year or two. Here was a case that went nearly six years without any sign of recurrence, and when recurrence did occur it was in the cervical glands, not at the site of the operation at all.

Another case of breast carcinoma, on which I operated in September 1890, had no recurrence until September 1894, then it was not at the site of the operation but in the retro-sternal glands—here again the axillary glands were involved, and the contents of the axilla freely removed.

A Case of Traumatic Tetanus with Recovery.

Dr. J. C. CAMERON read a paper on this subject. (See page 881 of the June number).

Dr. F. J. SHEPHERD stated that he had never seen a good result from the treatment of tetanus, and he had tried chloral, opium, early amputation, etc. He asked about the condition of the wound at the time it set in and if there could possibly have been any other wound.

The PRESIDENT related the history of a case which had occurred in his practice some fifteen years before. The patient, a lady, had stepped upon a garden rake and one of the teeth had entered the ball of her little toe. The wound healed completely, but some time afterwards she suffered from pain in the wound, extending up the outer side of the leg, stiffness of the jaws, etc. Within a week there was complete opisthotonos. He had used Battley's solution and pushed it. On one occasion in his absence chloral had replaced it, but it did not give as much relief. The Battley had been given in 30 minim doses every three hours till delirium was produced and then gradu-

ally reduced for from two to three weeks. The patient recovered and was alive to-day.

Anæsthesia in a Case with Diminished Breathing Area.

Dr. G. Gordon Campbell read the report of this case. (See page 18.)

Stated Meeting, May 3rd, 1895.

G. P. Girdwood, M.D., President, in the Chair.

Discussion on Erysipelas.

Dr. Hingston, on introducing the subject, spoke as follows: My present duties are not at all difficult; I take as much as I choose to take and leave as much as I choose to leave. So many gentlemen are named to present the question in its various aspects before you, and to take part in the discussion that I think I shall best consult the interests of the Society by saying as little as possible at this stage. First, what is erysipelas? It is a disease known to most of us, in fact to the whole of us; a disease met with often, and particularly in hospitals; an inflammatory affection of the outer surface of the skin, characterized by all the usual signs of inflammation, yet with something more. In reading the subject in some of the recent text-books and periodicals, I have been rather interested to learn that very little was known or written upon the subject until the eighteenth century. Yet when I turn to Wiseman, the father of English surgery, I find a very able paper upon the subject; and in turning to the father of French surgery, Paré, who lived in the time of Queen Elizabeth, I find two important chapters devoted to the subject, in which Paré quotes the ancients—Galen and others—as having written on the subject.

A word as to the origin of the disease. Although the inflammation is seemingly of the skin, it does not arise in the skin, but in the lymphatics of the skin. Some authors go further and confine it to the leucocytes in the lymphatics of the skin This is a nicety which must be left to bacteriologists to establish or to destroy. Another and most important question is: is the disease specific? or is erysipelas a mere ordinary inflammation? Some contend that it is an ordinary inflammation, modified by such circumstances as atmosphere, constitution and the surroundings of the sufferer. The opinion now, however, is general that erysipelas is a specific disease differing from ordinary inflammation in having a material organism or germ which is proper to it. Fehleisen claims to have discovered a microbe, a streptococcus, as it is called, in every case of erysipelas. He found by ex-

periment he could convey the disease to animals ; and from man to man. It is now established that, in erysipelas, there is a morbid specific inflammation, and that the streptococcus is always present, or is in some way connected with this morbid action. Another feature of interest : the streptococcus is not usually found over the whole erysipelatous blush. As the erysipelas progresses, the streptococcus disappears. The microbe is found in largest numbers at the margins, and in large numbers beyond the inflammatory zone ; indeed these are met with in greater numbers in tissue not yet seemingly invaded, than in parts over which the disease has passed. The streptococci are sometimes met with in such large numbers that leucocytes are to found have disappeared altogether, while the ground that has been traversed by the disease is often as free from the streptococcus as is the prairie free from grass where fire has recently passed. Another question is : how does the microbe enter the body ? Most authors agree that the disease enters where there has been created some solution of continuity, some traumatism, some bruise or scratch in the skin ; others believe the disease to be purely iodiopathic, occurring independently of all traumatism ; while not a few are of opinion that erysipelas may occur sometimes in one way, sometimes in another. Another question is as to its contagiousness. One would suppose that question to have been solved long ago ; but it is not solved yet. Most men believe that the disease is contagious ; some however, and even maintain recently, it is not contagious ; still larger numbers believe that it is not contagious under ordinary, but only under exceptional circumstances. Well, for myself, I should say, from a clinical aspect, I should be sorry to place a patient, upon whom I had operated in the immediate neighbourhood of a case of erysipelas ; not that I believe that the disease is as contagious as some suppose, or that extension to a healthy wound necessarily follows proximity.

How does erysipelas spread ? It is believed to spread along the lymphatics, and by the minute capillaries, and by the very small veins. It travels where the lymphatics are most numerous. For instance, a patient suffers from erysipelas of the face, it is often secondary, the disease reaches the upper lip, that it jumps quickly to below the jaw, not frequently attacking the parts between.

There is another form of erysipelas ; called phlegmonous erysipelas. Is it the same disease ? Here also there is difference of opinion. Some contend it is the same disease ; but favoured by certain circumstances, either in the condition of the patient, in the atmospheric state, or in the patient's surroundings the disease goes

on to the formation of pus. Some contend that phlegmonous erysipelas has a coccus entirely different : a something superadded, a something unlike the streptococcus which caused the disease in the first instance. Then as to the gravity of the two diseases or of this modification of the same disease : the one—that is the form limited to the true skin—has a tendency to recovery, while of the phlegmonous variety its course is uncertain ; sometimes prolonged ; and not infrequently disastrous. Some contend that the streptococcus, finding itself in an unyielding skin, behaves itself with becoming modesty ; but that when it gets below the skin into the loose connective tissue, it comports itself in a very different manner, but that notwithstanding a marked difference in feature, it is essentially the same disease caused by the same micro-organism. That I can say—speaking from a surgical point of view—phlegmonous erysipelas, especially in the neighborhood of the joints, is a disease of which I have very considerable dread, and this dread is increased if the subject of the disease is not clearly and unmistakably free from all taint of a tuberculous character. At the present time I have, under my care, a case of phlegmonous erysipelas, beginning in the neighborhood of the ankle joint, gradually attacking its synovial membranes, and leading to amputation of the ankle, then of the knee, and later of the elbow, Erysipelas is not confined to the skin ; it invades the mucous membrane. In the face, it travels up and attacks the eye. It enters the nostril, there giving great trouble. You know the disposition the skin bears to the nostril ; it goes in to meet mucous membrane, the reverse of what occurs at the lip. It is there where erysipelas gives much trouble. It is said to attack the mucous membrane of the female vagina, and I am glad that another gentleman is to take up that portion of the question. I should like it established whether the streptococcus of erysipelas has really any relationship or affinity to the gonococcus or other micro-organism which so frequently causes trouble in the tubes—inducing that pyosalpinx of females which gives the gynæcologist so much trouble. There is one other circumstance connected with erysipelas which I have recognized : I have seen erysipelas, in more than one instance, limit the spread of epithelioma, causing it to remain stationary for months, and even years. In one case, still under observation, more than five and twenty years have elapsed since epithelioma first appeared, and in time, erysipelas has again and again arrested malignant action for months, and, in some instances, for a couple of years. The signs by which erysipelas are recognised from ordinary inflammation are so familiar to us all that I think it unnecessary to allude to them.

On the Bacteriology of Erysipelas.

Dr. ADAMI—That the disease erysipelas is due to the presence and active growth within the subcutaneous lymph spaces of one special form of micro-organism—a chain coccus or streptococcus—is now generally accepted.* But while we find a very characteristic disease induced by the presence of one special form of micro-organism, it by no means follows that that microbe is specific in the narrowest sense. It by no means follows that that microbe causes a cutaneous disorder alone and does not have ill effects in other tissues of the body. Indeed, what I wish to point out now is that the tendency of modern bacteriological work is to look upon erysipelas not as a disease *sui generis*, but as one manifestation of the pathogenic action of a germ that is very widely diffused, a germ capable of inducing processes differing in appearance according to the organ affected; the tendency is in short to regard the streptococcus of erysipelas in the same light as we regard the bacillus found in lupus. If Robert Koch had not made investigations into the bacteriology of lupus at the same time that he made his classic studies into tuberculosis of the lungs, of lymphatic glands (scrofula), of bones and joints, and if some other observer had independently discovered the tubercle bacillus in cases of lupus without recognizing the alliance of the disease to tuberculosis as it shows itself in other organs, it is quite possible that many would regard the bacillus of lupus as a different species from the B. tuberculosis. It would not be difficult to point out differences between the two forms in the rate of growth, in pathogenic properties and so on quite as distinct—or indistinct—as the differences that have been drawn between the streptococcus pyogenes and the streptococcus erysipelatis. When, however, we find that the chain coccus obtained from a case of purulent peritonitis will induce a typical erysipelas in the rabbit's ear, and that cultures obtained from an erysipelatous patient will, when inoculated into a series of rabbits, cause in some true cutaneous erysipelas, in others erysipelas associated with cellulitis, in others the formation of abscesses and pyæmia, with foci of suppuration in various organs, it is difficult to arrive at the conclusion that there is any line of distinction sufficiently sharp to render it proper to exalt the streptococci

* I would have said universally if it were not that of late cases of erysipelas had been described in which the cluster or staphylococci alone have been found. The difficulty of accepting such cases as authentic is two-fold: (1) It is easy to fail in obtaining cultures of streptococci from perfectly typical cases of the disease—thus the absence of chain growths in the culture media does not necessarily imply their absence within the tissues. (2) The ordinary pyococci may be looked upon as normal, or at least not unusual inhabitants of the surface of the skin—thus the presence of growths of these in material gained from a cutaneous lesion does not necessarily imply that they are the cause of the lesion.

of erysipelas and suppuration into distinct species. Add to this, that no single satisfactory characteristic has yet been established distinguishing the cultures of the cocci of one "provenance" from those of the other. All the morphological and cultural character of a series of growths from cases of erysipelas can be seen reproduced in a series of growths from cases of suppuration.

Let me pass now to the clinical side of the case and see whether this view is upheld. It is true that one meets with very numerous examples of perfectly typical cutaneous erysipelas; we may have cases of oft recurrent facial disease which never affect more than the skin. Nevertheless, small as has been my clinical experience as compared with that of most here present, I have for long been impressed by the series of transitional forms to be met with between the typical cutaneous disease and spreading phlegmonous suppuration —and I fancy looking backwards you must be impressed by the same fact. There are the cases that are not simply cutaneous, but are, or rapidly become, cellulo-cutaneous; other cases in which the erysipelatous disturbance of the skin is associated with very evident advancing deep lymphangitis; others in which, with cutaneous disturbance, there is suppuration of the nearer lymphatic glands; others of most acute phlegmonous disturbance; others of erysipelas followed rapidly by pyæmia, and the production of abscesses in the internal organs. You must all have come across at least some of these cases. What is more, in hospital practice it is possible to observe that where once erysipelas manifests itself in a ward, there is in addition to be noticed a series of cases of genuine suppurative disease—endometritis, peritonitis, pyæmia and so on. Such a series showed itself last year at the Royal Victoria Hospital beginning with a case of endometritis and peritonitis and followed by erysipelas in one of the students who pricked his hand during the performance of the autopsy, and by a localised abscess formation in one of the resident staff. Into the fuller details of this very interesting series I doubt not that Dr. Bell will enter. I will go so far as to say that cutaneous erysipelas alone is comparatively harmless. The danger lies essentially in the possibility of its deeper extension and in the development of metastatic suppurative process.

The streptococcus pyogenes is in fact a microbe, not only capable of, but actually producing a long series of diseases; it is among the two or three most widely distributed and most pathogenic microbes. We find it associated with suppurative disturbances of serous cavities, of cutaneous and mucous surfaces, of the interior of glandular organs, of bones and joints. Not only may it set up primary disease, but

very frequently it is discovered in association with the micro-organisms of other diseases—or in the lesions forming the sequelæ of such. I need not dwell here upon its almost constant relationship to the diphtheria bacillus in the false membranes of the throat; upon its power of inducing the grave throat complications of measles and scarlet fever; upon its frequent presence in the pneumonic disturbances following upon diphtheria and typhoid, or upon its not uncommon association with the peritonitis following upon perforation of the appendix. These are subjects away from this evening's discussion. They are of interest, however, in connection with erysipelas, inasmuch as there is one fact which is capable to some extent of elucidating all of them. I refer to the fact that the streptococcus has frequently been found in what may be termed a saprophytic condition upon the human organism. It has been found in the saliva of healthy individuals, in the intestinal contents, in scrapings from the skin, and more especially in the dirt under the nails. In this way is to be explained the apparently spontaneous origin of some cases of erysipelas and suppurative complications. So long as the mucous and cutaneous surfaces remain healthy and uninterrupted, for so long would the streptococcus appear to be perfectly harmless; lower the vitality of the defensive zone of cells, either by direct injury or erosion or by other disease or by exposure to chemical and thermal influence, and then it would appear that from being a saprophyte the coccus may became parasitic and pathogenic. Granted that the streptococcus happens to be present upon the skin in the immediate neighbourhood of a scratch or wound it is not necessary that the instrument inflicting the wound be infected. Granted also that the streptococcus be present upon the surface, it is possible to explain those cases of erysipelas which appear idiopathic and unassociated with any recognisable erosion or wound of surface. For as Garré proved experimentally in connection with the staphylococcus, boils and furuncles can be induced without erosion of the surface layers, and as Welch has proved pyogenic cocci can pass down into the deeper layers of the skin passing along the hair follicles. Thus I am indulging in no unwarranted speculation when I say that lowered vitality of the exposed skin by thermal or other influences may form a condition favourable for the development of erysipelas in the absence of any wound or injury recognisable by the naked eye.

But granting all this, there is still a big gap in our knowledge of the streptococci and their action that has to be filled in. Why is it that these micro organisms at one time induce cellulitis and genuine suppuration, at another erysipelas? That we cannot fill in

with complete satisfaction to ourselves. We can only see a possible explanation. We know that as distinguished from the staphylococci, the streptococci induce inflammations that are not of a sharply circumscribed type, but, on the contrary, tend to spread in the immediate vicinity along the lymph spaces and tracts ; that erysipelas, lymphangitis, cellulitis, and abscesses induced by streptococci all have this character in common ; that, therefore, the differences between these processes is one of degree rather than of kind. We know also, as I have already stated, that equal quantities of the same culture inoculated into a series of rabbits will in someinduce erysipelas, in others lymphangitis, cellulitis and so on, and that therefore the reaction or extent of resistance on the part of the tissues has an important part to play. We find also that streptococci obtained from a series of cases of erysipelas, or on the other hand, of suppuration, vary remarkably in their pathogenic properties, and that, therefore, the virulence of these microbes is very far from being constant. Bringing all these facts together, we seem to see vaguely an explanation of the matter. But it is only vaguely : there is still much to be accomplished before the problem can be regarded as completely solved.

Lastly, I would say a few words regarding the development of the ordinary cutaneous erysipelas, a process which can be followed both in man and in the rabbits ear. Briefly, it would appear that in the earlier stages the virus developed by the growth in the tissues leads to a congestion of the vessels accompanied by exudation and consequent swelling of the area, and that in the earlier stages this is the main reaction. The chains of cocci develop within the lymph spaces at a greater rate than they are destroyed. Eventually in the region where the cocci are present in the greatest quantities, namely, at the original focus of infection, there is much migration of leucocytes, and destruction of the microbes ensues accompanied by a considerable amount of phagocytosis. Outside this central area of marked congestion and destruction, in the advancing zone of simple exudative swelling, the streptococci are still to be seen in fair quantities. According to Cobbett and Melsome at the height of the erysipelatous process they can be obtained more than one inch beyond the well defined edge of the congested area. As the process continues in a satisfactory case this outer area of exudation containing streptococci steadily diminishes, and according to these observers there is a more and more rapid response to the injury or stimulus produced by the presence of the coccus and its virus, until eventually the response on the part of the organism follows immediately upon the presence of the cocci, so

that now the reddened line of demarcation corresponds perfectly with the limit of extension of the cocci. Where this is the case the process comes to an end, the exudation and diapedesis suffice to destroy the microbes and resolution sets in. The healing and resolution of erysipelas is thus essentially a process of accustomance or habituation of the tissues of the body to the microbe and its products, a process which, to use a familiar illustration, is like that of accustomance to tobacco, not immediate, but requiring some little period of time, which, unlike this, is not permanent, but lasts only for a few months. Thus it is that within a year an individual may again become susceptible to the disease and recurrence may occur.

Dr. RODDICK discussed the treatment as follows: All treatment should be based on the contagious character of the disease, and probably also on its specific character, because, notwithstanding the remarks of my friend Dr. Adami, I am still inclined to think that there is something specific in the erysipelas coccus. However the latter may change during the course of the disease, I am satisfied it has some distinct character at the outset. That it is contagious, however, there can be no two opinions, and hence is the treatment of the disease the first duty of the surgeon is to isolate the patient. Notwithstanding all the antiseptic precautions taken now-a-days, no one is justified in leaving an erysipelas patient near another patient, or in treating erysipelas patients in the same ward with other patients, even though no wounds are present in either case.

The disease is generally treated constitutionally and locally. The constitutional treatment consists first of all in clearing out the bowels and getting the patient into condition for a siege. It is a good old-fashioned plan to begin your treatment with a purgative. The old-fashioned calomel purge, the strength of the dose varying with the condition of the patient, answers admirably. Then, in spite of all that is being said, I have implicit confidence in the use of iron. I think the tincture of the muriate of iron is almost a specific in the early forms of erysipelas; in the later forms it may not be so efficient. Dr. Adami may probably be able to confirm my statement that it has been found that during an attack of erysipelas the blood undergoes a considerable change: the corpuscles assume a shrunken condition and there is an absence of hæmaglobin. Now, it is contended by many that iron has a decided effect in improving the condition of the blood corpuscles. Bell, of Edinburgh, first originated this theory, and it has since then been borne out by pathologists. Iron, then, in large doses, as much as 25 minims every four or six hours, depending on circumstances and the condition of the patient. The stomach some-

times will not bear the iron, but the addition of a little chloric ether will relieve the stomach. Sometimes you may give the iron in doses of half a drachm. Quinine also, two or three doses daily, is useful; ten grain doses may be given in some cases. Where a stimulating treatment is indicated camphor may be administered. In some cases camphor suits admirably; it relieves delirium, provided it be not pushed to that excessive stage where it might itself cause delirium. Alcoholic stimulants should be given early; it is a mistake to wait too long; and where a case is likely to be extensive I advise in the first stages to administer small doses, to be succeeded in the later stages by larger doses and of the diffusible kind of stimulants, such as champagne. You have here, then, in my opinion, all the constitutional treatment likely to be of service. I have no faith in salicylates; as a rule they are too depressive. In some cases of strong young men it may do good, but it should be closely watched. Neither have I any faith in aconite or digitalis, which we were wont to administer. The patient should also have milk and strong nutritious broths from the early stage of the disease; eggs and oysters are also to be recommended.

Of the local treatment, I think myself that notwithstanding the bacteriological origin of the disease, we can gain comparatively little by attempting to treat it as we would a septic wound, and cleanse it by antiseptics. The best thing if you want to use a liquid antiseptic is carbolic acid. It has a decidedly penetrating effect on the skin; in fact you know that in many cases we have to watch it for fear of poisoning. I generally use it in limited cases in the proportion of one drachm to one pint with lead and spirit. Lead is also an antiseptic, so also is spirit, which opens up the pores of the skin. Where an ointment may be employed, the recently recommended preparation of icthyol has given me admirable results. A solution also of from 2 to 4 per cent. used to wash the skin is useful. I employ it first as a lotion and afterwards as an ointment, the strength of the latter being from 40 to 60 per cent. with lanolin. Its great objection is its offensive odour—a patient in the Royal Victoria Hospital was made quite sick from the offensive odour—but thiol, recently introduced, is said to have all the properties of icthyol without its offensiveness. Thiol, therefore, might be used. I have no personal experience of it. These ointments should be rubbed well into the skin, and some surgeons advise that fine punctures should be made so that the ointment may actually enter the infected lymphatics. Hypodermic injection of carbolic acid we tried some years ago in the General Hospital, but we were not impressed with the results—we thought

the disease extended more rapidly. It is possible that we may not have gone far enough beyond the zone of the disease—beyond the line of the lymphatics invaded by the streptococcus. The application of carbolic acid in the form of ointment has many strong advocates. Where the disease tends to extend to the cellular tissue, the old-fashioned practice of making incisions should be used ; and here you always use antiseptics as in the case of any wound. Where a wound is present of course it should be thoroughly cleaned out and made aseptic as far as possible. The hygienic surroundings should undoubtedly be attended to ; the patient should be changed not only from the region where he may cause mischief to others, but for his own sake should be again changed, as relapse is very apt to take place if he is left too long in the one place. He appears to inoculate himself. Especially during the stage of desquamation everything must be kept disinfected. I have not exhausted the subject of treatment by any means, nor do I intend to speak of the treatment of any of the varieties of erysipelas, because I think this will be better dealt with by those who are down to speak of the special forms.

As to the remarkable power of erysipelas in curing other forms of disease, there can be no doubt. We all remember about the ulcers which had been in the hospital for months and months, and how, if they happened to contract erysipelas (and did not die), the ulcer was cured. So also old granular lids were cured by erysipelas. In new growths also it has been found useful, and the injection of the specific coccus in such cases is now a recognized therapeutic measure.

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CANADIAN MEDICAL ASSOCIATION.

The 38th annual meeting of the Canadian Medical Association will be held in Kingston, Ont., on the 28th, 29th and 30th August next.

From what we have learned of the programme from Dr. Starr, the general secretary, it seems to be certain that the meeting will be an unusually profitable one, so far as professional work is concerned.

Dr. Bayard, the president, who will be 81 years of age on the 21st August, will be sure to give something good.

Dr. Edward Farrell, of Halifax, will give the address in Medicine and Dr. I. H. Cameron, of Toronto, the address in Surgery.

The following papers have been promised:

A tumour of the Medulla oblongata—Dr. Graham, of Toronto.

What is the best treatment for retroversion of the uterus?—A. Lapthorn Smith, Montreal.

Report of a case of acromegaly—F. Buller, Montreal

Septic meningitis and infective sinus thrombosis from middle ear disease—Geo. E. Armstrong, Montreal.

Notes on typhoid fever in private practice—W. S. Muir, Truro, N.S.

Objective noises in the head—G. Sterling Ryerson, Toronto

Some practical notes on mental depression—J. V. Anglin, Montreal.

The operative treatment of injuries to the head—A. J. McCosh, New York.

Final results of gastro-enterostomy—Robert C. Kirkpatrick, Montreal.

Report of a case of dysmenorrhœa—J. C. Campbell, Seaforth.

Papers have also been promised by Drs. T. Wesley Mills R. F. Ruttan and T. G. Roddick, of Montreal; E. E. King, B. E. McKenzie and A. McPhedran, of Toronto; A. Bertram, Seaforth; Sir James Grant, Ottawa, and others.

A new and interesting feature of this meeting will be a skin clinic held by Drs. Graham, of Toronto, and Shepherd, of Montreal. Dr. Bulkley, of New York, is also expected to be present.

Let us have a grand rally this year and make the coming meeting the largest assemblage of medical men ever held in Canada. It is a duty that every physician owes to himself as well as a pleasure to identify himself with gatherings of this kind. The best interests of the profession are served and advanced by the meeting together of medical men from the different provinces.

No man can attend a meeting such as will be held in Kingston, even if only as a listener to the papers and discussions, without being repaid an hundred-fold. It broadens the view, enlarges the sympathy and clears away the cobwebs and diverts from well-worn ruts. Young men should begin at once to attend these meetings. The little that may appear to be lost by a few days' absence is well repaid, it is capital well invested.

The Canadian Medical Association offers almost the only opportunity afforded for the meeting together of doctors from the different parts of our broad Dominion in social intercourse and thus cementing the ties that do, and should even more than at present, bind us together as members of one profession and citizens of one country.

The Committee on Interprovincial Registration will present their report and it is hoped that something tangible will be agreed upon. It is felt more and more every year that our present arrangements are not as satisfactory as they perhaps might be.

We are in a position to state that the profession in that beautiful and attractive city of Kingston have arranged to make the meeting of the Canadian Medical Association this year pleasurable as well as profitable.

The general meetings will be held in the Convocation Hall of Queen's University and the section meetings in the class rooms.

Facilities will be provided for those who wish to visit the military school and the penitentiary.

On the second afternoon of the meeting the palace steamer "America" will take the members through the Thousand Islands, a trip of unsurpassed beauty. Supper will be served on board and in the evening an exhibition will be given with a search-light of one million candle power.

Comfortable hotel accommodation may be had at the British American Hotel and the Hotel Frontenac. Those so inclined will find in the neighbourhood good ground for using their rods or guns.

ONTARIO MEDICAL ASSOCIATION.

A most successful meeting of this association was held June 5th and 6th under the presidency of Dr. Bruce Smith, of Hamilton. There were a great number of papers read and an excellent programme was gone through. Among the papers read by the invited guests we notice: Operative Treatment of certain forms of Bronchocele, by F. J. Shepherd, of Montreal; Laryngeal and Tracheal Tuberculosis, by F. W. Chappell, of New York. A very practical paper on Delayed Union in Fractures was read by Dr. George A. Peters, of Toronto, and was discussed by I. H. Cameron, A. McKinnon and L. M. Grassett, of Toronto.

There was a very interesting discussion on diphtheria opened by W. J. Wilson, followed by G. M. Aylesworth, J. P. Fotheringham and others. An interesting feature in the meeting was the presence of half a dozen lady doctors, some of whom took part in this discussion and spoke well and to the point.

The number of papers was great and their value considerable. Dr. J. F. W. Ross, of Toronto, read a most conservative paper on "Modern Experimental Surgery in Man and Woman," in which he denounced the many useless and unnecessary operations which at present were so much in vogue. It was a protest against the over-operating tendency of the day.

A most instructive demonstration of the use of the projection microscope in the teaching of anatomy was given by Professor A. Primrose, of Toronto University. He fully proved the great advantages of this method of teaching. Good papers were read by T. K. Holmes, of Chatham, on Appendicitis; G. A. Bingham, Toronto, on Movable Bodies in the Knee-joint; Tumours of the Bladder, by Dr. Grassett, of Toronto; the Primary Repair of Genital Lesions in Childbirth, by K. N. Fenwick, of Kingston: the Present Position of the Antitoxin Treatment in Diphtheria, by Dr. Sheard, of Toronto; a case of Infantile Scurvy, by Dr. H. T. Machell, of Toronto; Operative Procedure for Spina-bifida, by Dr. H. Howitt, of Guelph; Seminal Vesiculitis, by Dr. King, of Toronto; a case of Mental Aberration following Removal of an Ovarian Cyst, by Dr. W. J. Gibson, of Belleville.

The discussions on the various papers were well maintained and the meeting was altogether a great success.

The members were entertained at luncheon in the Royal Canadian Yacht Club and afterwards a trip was made on the steam yacht "Cleopatra."

The meeting was a most enjoyable one and much credit is due to

the committee for the way in which it was carried through. The next meeting will be in Windsor, Ont.

SIR WILLIAM HINGSTON.

It affords us very great pleasure to note that among the recipients this year of the usual birthday honours is our esteemed *confrère* Dr. W. H. Hingston. As Surgeon-in-Chief of the Notre Dame Hospital, and as Professor of Clinical Surgery in the University of Laval, Sir William has been for many years a prominent figure in professional circles. He has likewise done good service to the state, having filled for two years the important office of Chief Magistrate of this city. In medical politics also he has been always foremost. Two years ago he was chosen to deliver the address in surgery before the British Medical Association, an honour, we believe, not hitherto conferred on a Colonial surgeon. Altogether Sir William has been a worker, which fact no doubt was taken into consideration by those whose privilege it is to recommend for honours. We sincerely trust that he may be long spared to grace the decoration of Knight Bachelor.

—The American Public Health Association which held such a successful meeting in Montreal last year, will meet in Denver, Col., on October 1st to 4th. This is the twenty-third annual meeting and is expected to be of great interest. All who can, should avail themselves of this opportunity to visit Colorado and judge for themselves, regarding the climate and the accommodation for invalids.

—The Convention of Bacteriologists, held in New York on June 21st and 22nd, was in every respect a great success. This was, we believe, the first congress devoted to bacteriology alone held in any country, and is of more especial interest to us in that it was the outcome of a suggestion emanating from Montreal. More than fifty bacteriologists attended, hailing from all parts between St. Louis and Montreal. Papers were read by Dr. Shuttleworth and Mr. J. J. Mackenzie, of Toronto, and Professor Adami and Dr. Wyatt Johnston, of Montreal.

—A work which, while not strictly medical, hasour entire sympathy, is the summer camp at St. Agathe, established by the Y. M. C. A. of Montreal. The rights of a lake have been leased from the Government, and this for two months is the scene of much healthful outdoor life. This first two weeks are given up to the juniors, that is mem-

bers of the Association between the ages of thirteen and sixteen. The number is limited to thirty, and by close figuring the expense is reduced to ten dollars for the two weeks, including railway fares.

When the juniors leave, the camp is put in order to receive the seniors who may go for any length of time, from one to six weeks.

The rules are few, being only such as are necessary to maintain order and obtain the greatest benefit for all.

Situated as it is among the Laurentian mountains, a week or two spent there must have a most beneficial effect upon the health of our young men, many of whom would otherwise be debarred from such a holiday on account of the expense. Therefore we look upon it as a good hygienic scheme and wish the promoters all success.

The Modern Trained Nurse.—Sir Dyce Duckworth has always taken a deep interest in nursing and in the Royal British Nurses Association, of which he is vicepresident, and in an address delivered before this body the other day he laid stress upon various important points connected with the profession of nursing, and not the least of these was, the absolute necessity, as he pointed out, of a nurse being subservient to the medical man. The old style of nurse has so entirely disappeared that the patients and practitioners of this generation can hardly realize how much the successful treatment of disease owes to the help of an intelligent, trained woman ; and this expression, *trained*, means, as Sir Dyce Duckworth clearly pointed out, not only medical and physical knowledge, but tact and silence. The abbot of Nitrian monastry once gave one of his monks as a rule of life the first verse of the psalm commencing, " I said I will take heed to my ways, that I offend not with my tongue." " When you can keep that rule," he said, " come, and I will give you another." Tradition has it that the worthy monk never arrived at the second. Be this true or not, it shows how the tongue in all ages has been regarded as an unruly member, and all nurses ought to remember to be absolutely silent as regards anything they may see or hear outside their own immediate duties. The Hippocratic oath still remains the canon for every attendant on the sick, either nurse or medical practitioner, and on this point Sir Dyce Duckworth rightly spoke with great earnestness.

—The *Western Medical Reporter* has ceased publication.

—Dr. Morrow has been appointed lecturer in physiology in the same University.

—Dr. Lafleur has been elected a member of the Association of American Physicians.

—Dr. J. Alex. Hutchison has been appointed surgeon to the Montreal General Hospital.

—Dr. C. F. Martin has been appointed assistant physician to the Royal Victoria Hospital.

—Dr. C. W. Wilson has been appointed assistant surgeon to the Montreal General Hospital.

—Dr. Adami has been invited to deliver the Middleton Goldsmith Lecture for 1896, before the New York Pathological Society.

—Dr. Birkett has been appointed Professor of Laryngology in McGill University in succession to Dr. Major who has left Montreal.

Dr. F. W. Campbell, Dean of the Medical Faculty of Bishop's College, has had the degree of LL.D. conferred on him by that University.

—Dr. Wyatt Johnston has been appointed lecturer in medico-legal pathology in McGill University and pathologist to the Montreal General Hospital.

—The place of the late Prof. Billroth on the editorial board of the *Archives F. Klin. Chirurgie* has been filled by the appointment of Prof. Gussenbauer.

—Dr. Boisy, of Havre, is probably the oldest physician in active practice. He has reached the respectable age of 103 years and still goes his daily rounds.

—A new medical journal, *Medicine*, has made its appearance. It is edited by Dr. Harold N. Moyer. Judging from the first number it will prove a valuable publication.

—Dr. F. F. Wesbrook (M.D., Winnipeg), has been appointed Demonstrator of Bacteriology at Cambridge University, and is conducting the graduate course in Bacteriology there.

—We understand that Dr. Playter, of Ottawa, intends starting shortly a home for consumptive patients in the Chelsea Mountains about ten miles from Ottawa, where they will have the advantage of being under the constant supervision of the doctor, and enjoy the invigorating air of that elevated locality.

THE

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Original Communications.

VISIBLE CONTRACTILE TUMOUR OF THE PYLORUS FOLLOWING ULCER OF THE STOMACH.

By WILLIAM OSLER, M.D., LL.D., F.R.C.P.,
Professor of Medicine, Johns Hopkins University, Baltimore.

In stricture of the orifice one can not infrequently feel the contractions in the enormously hypertrophied pyloric region of the stomach. In such cases a wave of peristalsis may be felt, during which the anterior wall of the organ hardens, and then, as the wave approaches the pylorus, a firm, hard mass may be grasped, which gradually relaxes, sometimes with a gurgling of gas. In very thin patients with much dilatation of the stomach the peristalsis is readily to be seen and the pyloric tumour may also become visible. In the following case the tumour at the pylorus was remarkably distinct and as it hardened in contraction lifted the skin in the epigastric region, so that a prominent mass could be seen even at a distance. The large size of the tumour suggested the possibility of carcinoma, but the history, and the evident muscular character of the mass, made me feel sure that it was chiefly due to the hypertrophied muscularis.

The subsequent history of the case, too, is of interest. Successful gastro-enterostomy was performed by Dr. Bressler, and three weeks subsequently the Murphy button which had been used perforated the colon, causing fatal peritonitis.

Attacks of gastralgia—Hæmatemesis—Prominent tumour at pylorus, which relaxes and contracts and appears and disappears beneath the skin—Dilatation of the stomach—Gastro-enterostomy; perforation of the colon by the Murphy button.

B. S., aged 28, admitted to the Johns Hopkins Hospital December 1st, 1893, complaining of pains in the stomach. His family history is good.

He has been healthy, with the exception of attacks of dyspepsia He uses alcohol in moderation.

In May, 1892, after an indiscretion in diet, he had cramp-like pains in the left side of the abdomen. The attack did not last very long, but the pains recurred in a few days and continued for about a month at varying intervals. They had no relation to meals, and although he was often nauseated, he only occasionally vomited. He was confined to bed in this illness and lost considerably in weight. From his description it was evident that the pain was of very great severity. After getting up he felt fairly well, except for an occasional dull, aching pain in the abdomen. He kept at work and was very well all through the summer and autumn.

In December, 1892, he again began to have attacks of pain, cramp-like in character and of great severity, coming on as a rule three or four hours after meals and lasting for an hour or two. Throughout the winter of 1892–93 he was in the house and in bed a great part of the time, not able to work. Towards the spring he vomited at intervals large quantities of food, a quart at a time. In May he vomited blood in large amounts. He said it looked like finely minced liver; for several days afterwards the stools were dark and tarry. After this he got quite well, the appetite returned, he gained in weight, and went back to work. Towards the latter part of the summer he noticed a lump in the left side of the abdomen, which has increased in size. A week ago the patient had a return of the severe cramp-like spasms, and he has since vomited blood four times, not, however, in very large amounts.

On admission the patient looked a little emaciated, but the lips and mucous membranes were of fairly good colour; no fever; weight 128 pounds. Examination of the thoracic organs is negative. The abdomen looks natural; the left epigastric region is perhaps a little fuller than the right. The stomach occupies a small area almost completely covered by the ribs. It does not extend lower than the seventh space on the left side. On deep inspiration an elongated mass is felt to descend from beneath the costal margin. After dilatation with bicarbonate of soda and tartaric acid the left epigastric region becomes much fuller. The mass is now to the right of the middle line, feels firm and hard, and gas can be felt bubbling through it. The area of stomach tympany is greatly increased, extending almost to the umbilicus and passes the median line. Above it extends nearly to the nipple. On inspection waves of contraction are seen to pass from left to right, and there is a distinct hour-glass contraction. Liver and spleen are not enlarged. At 9.45 a.m. the patient's stomach was emptied and washed, and the milk he had taken at 7 a.m. came out

curdled, and but little diminished in amount. At 12.30 the patient took 250 cc. of clear broth, from 50 to 100 grammes of meat cut small, about the same amount of bread and 250 cc. of water. At 5.30 p.m. about 250 cc. of fluid mucus with finely divided food, yellowish brown in colour and with a rancid odour, were removed. This reacted with phloroglucin-vanillin for HCl, and with Uffleman's test for lactic acid. Peptones were present; 10 cc. were neutralized by 13.5 cc. of deci-normal sodium hydrate solution, and 10 cc. of the juice shaken thoroughly with ether were neutralized by 10.2 cc. of deci-normal sodium hydrate.

The patient was ordered five grains of bicarbonate of soda every two hours in milk. He improved rapidly, gained in weight, took small quantities of food at short intervals, and seemed to be doing well. The test meals always gave a marked increase in the total acidity.

Special attention was directed to the condition of the tumour. It was extremely variable in position, depending entirely upon the degree of distension of the stomach. Shortly after admission it was noticed that the tumour mass was visible beneath the skin, appearing and disappearing. On watching the epigastric region an elevation of the skin took place, usually midway between the navel and the ensiform cartilage, and a definite tumour projected, which could be seen plainly at some distance away. After remaining for from half a minute to a minute it gradually disappeared. On palpation, when visible, there is to be felt an extremely firm, hard, somewhat sausage-shaped mass, which, as it disappears, relaxes and gets soft. There is no visible peristalsis, except when the stomach is inflated.

The patient remained in the hospital throughout December, gained somewhat in weight, and took his food well. He was discharged January 7th, 1894.

On January 15th he was re-admitted, complaining of a severe burning pain in the epigastrium, only relieved by eating. While at home he took from five to ten grains of bicarbonate of soda every two hours. Shortly after admission I made the following note: "The tumour mass in the abdomen appears and disappears as formerly noted. It occupies a position to the left of the median line. The variations in it are very striking. As it contracts and becomes hard it lifts the skin and can be then plainly seen. As the contraction relaxes it disappears, often with a sizzling sound, which can be heard, and then becomes much softer to the touch. But even in this state the tubular induration can be felt. There are now, without inflation, slight waves of peristalsis seen to the left of the tumour mass below the costal margin."

January 26th. After having had no food since 10 p.m., the tube was passed at 8 a.m, and 266 cc. of a yellowish brown fluid of the consistency of thin gruel were withdrawn ; odor rancid. It reacted strongly to litmus paper, and the phloroglucin-vanillin for acid ; no reaction for the lactic acid test. The total acidity was neutralised by 6.5 cc. deci-normal sodium hydrate solution. During the latter part of January the patient did not do so well. There was evidently more dilatation of the stomach, and the waves of peristalsis were plainly seen without artificial inflation. The pyloric tumour was no longer visible, and was felt much further to the right, midway between the navel and the costal border. From three to five hours after the taking of food there was usually found about a litre of yellowish-brown, rancid, frothy fluid.

On February 15th the following note was made : " This morning the outlines of the stomach are very distinct, and the peristalsis active, the pyloric outlines reaching nearly to the right mammillary line. The mass at the pylorus is not nearly so distinct, and is no longer to be felt near the middle line, but can be made out in the right parasternal line, evidently covered by the distended pyloric portion of the stomach. Palpation increases the peristalsis."

On the 26th of February the patient vomited 200 cc. of bright blood. The peristalsis was very active. The greater curvature of the stomach extends two fingers breadth below the level of the navel. The tumour mass to-day is far over in the right hypogastrium. The patient was ordered enemata of peptonized milk and egg, and given only albumen water by the mouth, with bicarbonate of soda every two hours.

28th. The stomach is much reduced ; the pyloric tumour is in the median line ; there is no peristalsis.

March 2nd. The patient has had no more vomiting, and is much better. The abdomen looks natural : there is no peristalsis. The pyloric tumour is to-day just above and to the right of the umbilicus. The contraction and relaxation are apparent to-day.

The patient during this attack has lost in weight. Thus he weighed 132 pounds on the 13th : he now only weighs 123 pounds.

March 5th. Patient insists on going home ; he has been better for the past few days. The dilatation of the stomach has very much lessened. The pyloric tumour is situated just below the ensiform cartilage. No peristalsis is seen. The stomach bulges just beneath the left costal margin. The tumour mass is not nearly so variable and almost constantly hard and firm.

Remarks—This case presented many points of interest, and was

shown repeatedly in the ward classes. The age of the patient, the history of dyspepsia, the gastralgic attacks, the vomiting of large quantities of blood, and the persistent hyperacidity of the gastric juice, pointed unmistakably to ulcer. The tumour mass was the feature of special comment. The most remarkable phenomon was its phantom character. It would lift the skin in the middle line, between the navel and the ensiform cartilage, appearing as a definite tumour transversely placed, and was then to the touch firm and hard. After lasting for from half a minute to a minute it would gradually disappear, with sometimes an audible sizzling sound ; on palpation the tumour mass became very much softer, but even when relaxed it was evident as a somewhat sausage-shaped, tubular body, which could be rolled beneath the fingers. The only rational explanation seemed to be that in consequence of the ulcer there was much cicatricial puckering, with narrowing of the pyloric orifice, and consecutive hypertrophy of the pyloric zone. The phantom character of the tumour could be alone explained on the supposition of an alternate contraction and relaxation of the hypertrophied muscular tissues about the pylorus ; and with this the evidence obtained on palpation was fully in accord, since when the tumour was visible beneath the skin, it was excessively firm and hard. Relaxation took place under the hand, and with a marked change in the consistency. The variations in position and size of the tumour, with the increase in the dilatation, is often noticed in pyloric masses of this character. The patient was urged to have an operation, but would not consent.

January 20th, 1895. Since the above remarks were written, I ascertained that this patient, during the summer of 1894, came under the care of Dr. Bressler, who performed successfully gastro-enterostomy, using Murphy's button. At the end of the third week, after convalescence was established, general peritonitis developed, of which he died.

Dr. Bressler very kindly sent the specimen to me for examination and description.

The specimen consists of stomach, except cardia, with the coil of intestine removed *en masse*. Attached to the greater curvature of the stomach, about 6 cm. from pylorus, is a portion of the small intestine (jejunum). The line of attachment is shown in front ; narrow, clean, and without adhesions. The artificial orifice between intestine and stomach admits the index finger. The transverse colon passes directly behind the attachment of the stomach and intestine. At the splenic flexure Murphy's button has lodged, and has caused a perforation 2 by 1.2 cm. The pyloric region of the stomach is enlarged, the transverse

colon and omentum adherent, and there is considerable thickening of peritoneal tissues about it. When the duodenum is opened, the thickened lips of the pylorus can be seen, and a circular orifice about 5 mm. in diameter. From the stomach, the little finger cannot be inserted into the ring. There is a narrow channel through which a lead pencil could be passed. When laid open, the thickened walls seem to be made up of a greyish connective tissue, and enormous thickening of the muscularis. The wall measures in one place 14 mm. The mucous membrane corresponding to the thickened portion is in places puckered, looks thin, and at one point, corresponding to the anterior wall, and about 3 cm. from the duodenal orifice, there is an area 15 by 10 mm., which looks like the floor of a healing ulcer. The whole muscular coat of stomach is greatly hypertrophied.

A portion of the pylorus was cut out from the peritoneum to the floor of the ulcer, and I am indebted to Dr. Blumer for sections. There was nowhere any trace of carcinoma. Almost the entire mass was made up of enormously hypertrophied muscularis. Near the floor of the ulcer a large artery was cut across, which showed a thickened muscularis and great proliferation of the sub-endothelial layer.

ANEURISM OF LOWER END OF THE THORACIC AORTA.*

By J. G. Adami, M.A., M.D.,

Professor of Pathology, McGill University, Montreal, and Pathologist to the Royal Victoria Hospital.

The specimen exhibited was a sacculated aneurism of large size developed from the posterior wall of the thoracic aorta and extending behind the main aortic trunk, both upwards into the thoracic cavity and—expanding the aortic opening of the diaphragm—downwards into the abdominal area.

The aneurismal sac lay on both sides of the vertebral column; it extended upwards as far as the lower part of the body of the 8th dorsal vertebra, and downwards as far as the middle of the 1st lumbar vertebra. Its total length was 17 cm. (almost 7 inches), its width in the unexpanded condition 11 cm. The opening into it from the aorta extended from the lower end of the body of the 10th dorsal to the intervertebral disc between the 11th and 12th dorsal. Thus while the sac extended into both thorax and abdomen, this aneurism was definitely thoracic in origin, for the abdominal aorta only begins opposite the body of the 12th dorsal.

The aneurism had caused extensive erosion of the body of the 10th, more on the right side than on the left, less extensive erosion of the 9th and 11th vertebræ. The sac on removal contained about 200 ccm. of dark fluid blood which, on the right side, passed into firmer, more fibrinous clot. Above and towards the left the wall became much thinned with the formation of slight secondary sacs.

Incidentally it may be remarked that the aorta in this case presented two other aneurismal dilatations, a small sacculated, funnel-shaped aneurism 12 mm. long by 5 mm. in breadth and 10 mm. deep, situated within the bend at the junction of the transverse with the descending portion of the arch. This evidently represented a dilatation of the aortic end of the Ductus Botalli. While 5 cm. above the bifurcation, the aorta expanded into a small diffuse aneurism, the greatest circumference of which was 8.25 c.m.

With all this tendency for giving way of the aortic walls, it was to be noticed that the athermatous change in the interior passed nowhere beyond the fatty stage.

The specimen as such was interesting, for it is more usual to obtain aneurism below rather than above the diaphragm in this region of the aorta. Nevertheless while infrequent, the condition

* Read before the Montreal Medico-Chirurgical Society, May 17th, 1895.

could not be described as rare, and he brought the specimen forward rather from its clinical history than from its value as a pathological specimen. For the notes upon the case he was indebted to Dr. Evans and Dr. A. G. Nicolls.

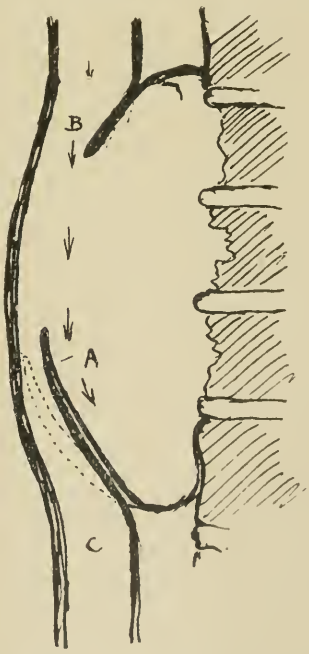
The subject from whom the specimen was obtained, was a plate layer on the C.P.R. aged 32 years; the nature of whose work required much lifting of heavy weights and active muscular exertion. He was further addicted to excessive use of liquor, and what is of more importance, he contracted syphilis five years ago, and passed through a secondary stage of the disease, his throat especially troubling him.

About a year and a half ago he began to be troubled with vomiting, most marked in the morning. Eight months ago he began to feel very weak, and found that on stooping down he had some difficulty in getting up again; with this was loss of appetite and pain in the right side in the region of the 10th and 11th ribs. In February, about three months later, the pain became so intense that he could not rest. The bowels were usually constipated. Rapid emaciation now set in and the patient presented an anæmic appearance, not unlike the cachexia of malignant disease. Within a few weeks patient stated that he had lost over thirty pounds in weight.

The cachexia, together with increased liver dulness and the pain in the right side, led to a diagnosis of possible malignant disease of the liver, and his medical attendant sent him to Dr. Girdwood, as consultant to the C.P.R. On April 30th, as he was walking up from the station to University street, he fell down and found himself unable to rise. He was conveyed immediately to the Royal Victoria Hospital.

There on admission he exhibited complete loss of power, with complete anæsthesia in the lower extremities. But in three hours sensation and power of movement returned, and the knee-jerks were found increased. Pulse 110, weak, thready and at times scarce perceptible. Heart beats in pairs. Apex beat just inside nipple line. Breath heavy and cadaverous. Nothing noticeably wrong in the respiratory system. Bowels very loose, with mucous and occasional streaks of blood. Before the opportunity presented itself for full study of this case a grave change ensued. Early the next morning patient had a syncopal attack, he became very livid, pulse absent and respiration very laboured. He rallied under stimulants. Throughout the day he was extremely weak. In the evening inhalations of oxygen were given and the pulse improved—but three-quarters of an hour later he complained of sudden pain, became pulseless and died within three minutes.

The autopsy showed that death had been caused by rupture of the aneurism into the left pleural cavity. This was filled with blood and the lung was collapsed. Rupture had occurred at the apex of one of the small secondary sacculations. Denser, more firmly coagulated blood was found in the posterior mediastinum, advancing up to the root of the left lung, and rendering it not improbable that the syncopal attack of the morning of death was due to a preliminary oozing in this neighbourhood. The shape of the aneurism appeared to explain the sudden anæsthesia and paralysis of the day preceding death. An examination of the specimen shows that the aorta was greatly flattened, both above and below the aneurismal orifice, by the presence of the sac behind it, pressing it outwards. This flattening was greatest below, both from the fact that the sac there extended for a longer distance down behind the intact vessel and also from the mere weight of the sac of blood. If, then, in ascending from the station to University street the exertion led to increased aortic blood pressure, it is easy to imagine that the moment arrived when the blood current or, more correctly, wave of blood pressure expanding



the aorta at B diffused itself through the sac to a greater extent than it continued in the direct line down the abdominal aorta, thus causing the edge A to be pressed over to the anterior wall, occluding the abdominal aorta. Such occlusions affect the circulation of the whole

lower half of the body. The arterial stasis thus induced would be amply sufficient to explain the sudden transient paralysis and anæsthesia observed in this case, as also the stoppage of urinary secretion that followed, and the diarrhœa, accompanied as it was by much mucus and some blood.

It is interesting to note that in this case there had evidently been long continued impairment of the abdominal circulation. There was the large spleen of venous congestion, together with large kidneys with white cortex and congested vessels, in addition to the clinical history of gastric disturbance. On examining the specimen it is seen that the cœliac axis, the renal arteries and the superior mesenteric were given off from the region of the aorta, flattened by the protrusion outwards of the lower part of the aneurismal sac. The liver, probably given its double vascular supply, did not show morbid change to the same extent. In the other organs impairment of the arterial supply and lowering of the arterial pressure would lead to the passive congestion and its results here noted.

ON THE MODIFICATIONS NECESSARY IN COW'S MILK TO RENDER IT SUITABLE AS AN INFANT'S FOOD DURING THE HOT SEASON. *

By A. D. Blackader, B.A., M.D., M.R.C.S.

Professor of Pharmacology and Therapeutics, Lecturer on Diseases of Children, McGill University.

Apologies are necessary in presenting such a desultory paper before the members of this Society. My object in suggesting the subject for discussion this evening was not that I personally could throw any new light on this much discussed question, but rather the hope that after comparison of views we might possibly unite our influence, and support that scheme which best promises to supply to our patients a pure, sterile milk, and that now as the hot season is commencing we may, as the result of discussion, all gain clearer and more definite views as to what modifications are necessary in cow's milk, as obtainable in the city, to render it a suitable food for the many infants who may have to depend upon it as their chief or only source of nourishment.

Two important considerations, it seems to me, should guide us in the employment of cow's milk. The first is that we must have a practically sterile milk, lest we introduce poison-working bacteria and their deadly products into the alimentary canal of the infant. The second is that even sterile milk to be a proper food must show itself easily digestible in the infant's stomach ; and in the great majority of cases it requires to be variously modified to suit the digestive capacity of each individual infant.

At the outset the milk must be pure and, as far as possible, uncontaminated. In a report on the milk supply of London by a special analytical and biological commission (*British Medical Journal*, June 6, 1895) the sophistications met with in milk are briefly stated as follows :

1. The addition of water—both dishonest and dangerous.

2. The addition of substances intended to prevent decomposition—not perhaps of themselves dangerously injurious in the quantities added, but facilitating the sale of stale milk.

3. The addition of substances intended to give colour—generally not injurious.

4. The abstraction of cream or the dilution of a rich milk with

* Read before the Medico-Chirurgical Society of Montreal, June 17, 1895.

milk from which cream has been abstracted—dishonest and in many instances dangerous.

5. Pollution of milk—always dangerous. This pollution may occur: (*a*) From hands of milkers; (*b*) by discharges from the genitals and fœcal and other matters soiling the udders and teats, and thus gaining access to the milk; (*c*) from the use of dirty utensils, either at the dairy, or at the retail establishment; (*d*) from the washing of the utensils with dirty or infected water, or from the exposure of the milk or utensils to insanitary emanations either at the dairy or the retail shop; (*e*) from the dirty hands or clothes of the milkmen in the streets, and from their careless exposure of the milk during distribution.

The commission adds: "One is hardly surprised to hear it authoritatively stated that unsophisticated milk is practically unknown in the London supply." Can we speak any more encouragingly of our Montreal supply? I fear not.

In an article in the Report of the Dairy Commissioners of the State of New Jersey for the year 1894 Professor Leeds refers to the same adulteration being met with in the milk sold in that State. He says much partially skimmed milk is sold in the State as whole milk, and this will continue to be the case until the percentage of fat is regulated by law and fixed at a minimum of 3.5 per cent. He refers to dairies "infamous alike in their cruelty to animals, in their brutalizing influences upon men, and in their disease-spreading effects upon infants," and emphasizes the great benefit of inspection to dairy farms wherever it is carried on with honest effort, and of a system of practical instruction in the handling and preservation of milk and its products, such as is carried on in the national schools in France.

In Montreal we have neither inspection nor instruction. Much of the milk supplied to us is brought into the city from the country consigned to dealers, and is at least 24 hours, often 36 or 48 hours old before it reaches the consumer. Judging by my own experience, but a mere fraction of the milk sold in Montreal can be relied upon as being pure and unsophisticated. Lack of knowledge and lack of honesty sadly interfere with the purity of our supply, and it must be remembered that contaminated or adulterated milk, even if sterilized, will by no means yield good results in infant feeding: we may destroy the microbes themselves, but we do not affect their poisonous products by the process. An ideal milk obtained from cows cleanly kept and fed on a good farm, milked under careful precautions and brought into the city with a minimum of handling and shaking, would go a long way to lessen infant sickness and mortality in our midst. It is

with much pleasure, therefore, that we learn that a gentleman trained in Pasteur's Institute, and who has a farm in the Townships, is making arrangements for placing on the market a pasteurized milk that is said to fulfil the above conditions. One condition, however, seems to me necessary in connection with it. Notwithstanding the fact that it is pasteurized, as physicians we must also insist on its being fresh, for it has been found that milk well sterilized will after a certain interval of time undergo a form of decomposition with an alkaline reaction. Although this form of fermentation has not yet been sufficiently investigated for us to pass an absolute opinion upon the deleterious effects of its products, yet that such a form of fermentation is liable to take place should condemn the storage of sterilized milk and its use as a food for infants after any prolonged period has elapsed.

In Boston, owing to the able inspiration of Dr. Rotch, the Gordon Walker Laboratory has been started, where absolutely sterile milk of definite and known composition can be obtained. More than that, it is arranged that in this laboratory, milk on the prescription of the physician, of any desired composition, may be supplied in bottles containing the exact amount for each feeding. Thus milk is so altered that it shall contain more or less of the albuminoids, more or less of the fats, or of the sugars, as may render it suitable for the digestive powers of the infant.

In New York, where the difficulties connected with a good milk supply may be regarded as even greater than our own, several laboratories have been started by physicians and philanthropists to supply during the hot season sterile milk to the poor. Dr. Koplik, who has for many years interested himself in this question, writes as follows (*New York Medical Journal*, February 4, 1893): "The physician who simply prescribes for his little patient—when the infant must depend very much upon the good intentions of its parents, schooled neither in the art of cleanliness nor in that of cooking, even of the most primitive nature—scarcely performs more than half the work expected of him. The conditions present among the immense infant *clientèle* of the poor are an anxious mother worn out by unsuccessful attempts to make amends for her mistakes and those of others, and an unscrupulous public caterer, who either through the avenues of chemical science, or the less noble one of dairy manipulation, looks upon these little infants as a just object of experiment or gain. We wash out an infant's stomach and bring it, after twenty-four or forty-eight hours, through the administration of albumins, to a condition of tolerance of food, only to have it begin again the attempt to

digest unwholesome milk, or to assimilate some chemical compound offered as food." Again he says, "The object of the writer in establishing a laboratory in connection with the department for diseases of children has been to give the infants a wholsome food basis—that is, a pure milk. We can with a well equipped laboratory not only ensure absolute cleanliness in the milk, but we can limit and regulate the daily quantity and the exact diluent and be certain that success will follow in a good proportion of cases."

In this laboratory the milk is obtained in large cans from a reliable State dairy; it is sterilized at a temperature between 85° and 90° Celsius, and dispensed to the patients in the ordinary green glass, three and six ounce prescription bottles, only half or two-thirds filled, and directions are given at the time as to how much diluent is to be added. These bottles are returned the following day and new ones issued, so that the supply for every day is absolutely under the physician's control, provided the mother follows the directions.

The temperature employed is distinctly higher than the Pasteur limits, but it was found that a single exposure to temperature below 85° C. would not retain milk, as they obtain it, in a sterile condition for twenty-four hours when stored without ice; and after many experiments, the temperature mentioned above was found to give most satisfaction. Milk thus prepared, although possibly slightly changed differs but little in appearance or taste from raw milk, and it may be supposed that the changes noted by Dr. Leeds in milk sterilized at 100 C. are practically absent.*

It is very desirable that a laboratory similar either to those in New York or to the Gordon Walker laboratory in Boston, should be started in Montreal, for only in this way can we reach the children of the poor, whose need for such a food is even greater than that of the children of the well-to-do. With the latter we can, of course, make an effort to have the milk sterilized at home, and with our present knowledge it would appear to me most blameworthy for any physician to attempt infant feeding in the city during the summer months with unsterilized milk, if it was at all practicable to have it sterilized. Even among the poorer class, when we meet with a careful, intelligent mother, we can often devise some simple inexpen-

* 1. The starch liquefying ferment which exists in cow's milk in minute quantities is destroyed.
2. A portion of the lactalbumin is coagulated.
3. The casein is less readily coagulated by rennet, and yields slowly and imperfectly to the action of pepsin and pancreatin.
4. The fat globules are injuriously affected by the heat. The fat is freed to some extent, and, after standing, small lumps of butter fat are observed on the surface of the milk, while the portion not freed has a decidedly lessened tendency to coalesce.
5. The milk sugar is distinctly altered as shown by a lessened dextro-rotatory power.

sive method by which all the milk when it arrives in the morning shall either be exposed in bottles to a temperature of about 85° or 90°C., or shall be simply scalded, which must ensure at least temporary sterilization.

With regard to the second point, the modification of cow's milk, to render it digestible by infants in hot weather, we should bear in mind the thought so well emphasized by Dr. Rotch, of Harvard University, that just as in the adult the digestive capabilities of different individuals differ as regards the various articles of food, some requiring less meat, others more, some using less starch or more sugar, so in the infant the digestive capacity for the various ingredients of the milk varies. This fact is exemplified in the analyses made of different breast milks on which the several infants nursing were individually thriving, in which it will be noted that both the fat and the albuminoids vary within wide limits. Clinically, we also know that every child will not thrive at every breast.

Especial attention must be paid to these digestive idiosyncrasies in hot weather, when even adults feel the depressing influence of extreme heat and the vitality of infants, with their susceptible nerve centres, must be even more certainly affected. For this reason, I am in the habit of reducing the albuminoids in cow's milk in hot weather to the lowest point compatible with nutrition. Clinically it has long been recognized that there is an essential difference between the albuminoids in human and cow's milk. Chemists have for some time told us that the albuminoids of human milk are in a distinctly more soluble form, and have a more alkaline reaction, and more lately they have recognized the presence of nucleins and paranucleins soluble in the one, and comparatively insoluble in the other; while practically, I think we find that it is the albumuminoids of the cow's milk that give us most trouble in the various forms of indigestion that precede many of the infantile diarrhœas. For this reason, whenever I meet with indications of imperfect digestion of the proteids, I think it better to at once lower the proportion of the albuminoids till the indications cease, even although I sometimes bring their percentage down to less than one per cent.

Of more importance, I think, in the nutrition of infants even than the albuminoids are the fats. Chemists, I understand, now recognize the fact that the average cow's milk contains a slightly lower proportion of fat than does human milk. Hence, when we come to dilute the milk, the percentage becomes much too low. I formerly attempted to increase the amount by the addition of cream obtained in the ordinary way, but generally found the result a failure, owing, I think, to the fact

that cream so collected is always old and must contain a very large proportion of the bacteria that may enter the milk during the process of standing. Centrifugal separators have the disadvantage of more or less churning the milk, but the cream thus obtained has given good results. In families a simple way is the plan recommended by Dr. Rotch of allowing the milk to stand in a tall jar in a cool place for four or five hours, and withdrawing the upper half, or better still, only the upper third. In this way we obtain a milk containing nearly double the percentage of cream, and a slightly lowered percentage of the albuminoids for dilution.*

To obtain the requisite proportion of the carbo-hydrates, we are all agreed, I think, that milk sugar, which can now be obtained, both pure and at a moderate price, has many advantages over ordinary cane sugar.

In reference to the best diluent for the milk, I am still of the opinion that a weak gruel prepared from some cereal is of advantage apparently by mechanically attenuating the clot. This is a question which has been much disputed. All the older teachers recommended the plan, but a few years ago Dr. Rotch, after experiments, stated that practically the size of the curd depended simply on the dilution of the albuminoids, and not upon the particular menstruum employed. Judging from the results of experiments by Eiloart (*N. Y. Med. Journal*, Sept. 16, 1893,) the problem is not so simple as it appears. Eiloart after testing the various mixtures in healthy infants' stomachs, withdrawing samples by means of the stomach tube after a short interval, found that the mixture of barley water and milk was in a distinctly finer curd than the mixture of milk and water simply. Cereal foods, even in such small quantities as may be present in a gruel, are obviously unsuitable for very young infants and, if given, are a frequent source of colic and indigestion.

* In order to learn exactly what difference the simple process of standing for three hours would make, the two parts of the milk were analyzed with the following results :

Lower half, mean of three samples	Fat 3·03	Total solids 12·36	Solids not fat 9·33
Upper half, " " "	Fat 4·90	Total solids 14·01	Solids not fat 9·11

—*Studies in Infant Feeding, H. D. Chapin, N. Y. Med. Jour., Sept.* 16, 1893.

A CASE OF AORTIC INCOMPETENCY AND STENOSIS.*

By J. Bradford McConnell, M.D.

Associate Professor of Medicine University of Bishop's College.

J. H., aged 15 years, sought advice on the 8th of August, 1894 complaining of loss of appetite, weakness, and pain in the region of the stomach. An alkaline stomachic was prescribed, and four days afterwards he was seen again. Now, in addition, he complained of constant nausea and frequent vomiting. For two or three months previously he had complained of not feeling well. He was attending school but had little inclination for study, had occasional headache and was weak and languid; he felt a little better after leaving school for a week and engaging in light work about the garden; but the malaise again returned and he felt inclined to lie down during a part of the day. Two weeks previous to my seeing him he complained of pain in his stomach, which, with nausea and more or less vomiting, has continued up to the present, his symptoms being worse towards evening.

He has had very little previous illness; ten years ago had measles; I attended him three weeks afterwards for a light attack of appendicitis, and the two following springs he had similar attacks; fever, pain in right iliac region, etc., recovering in a few days and getting up in about two weeks. He has not had any other illness, but once after running had an attack of dyspnœa and said he had a faint feeling and oppression in the heart region; bowels always regular.

He is tall and slender, somewhat emaciated, dull; skin pale and of a light icteroid hue. Pulse 128, respiration 32, temperature 99⅕; tongue thickly coated to the edges; complete anorexia; no headache, no œdema in any part of the body; breathing somewhat laboured and every few minutes, takes a deep, full and long inspiration. Coughed a few times during the previous night. There is marked tenderness over the region of the stomach: hot applications and poultices of linseed meal and mustard, with parvules of calomel gr. $\frac{1}{20}$, arrested the vomiting. Bowels had been moving once or twice daily. Stool this morning seem solid and greenish black in colour.

Examination.—Lungs, percussion normal throughout. Breath sounds broncho-vesicular, the normal tubular breathing in the interscapular regions being exaggerated; some fine crepitation over both bases behind. Areas of spleen and kidney dulness normal.

Liver.—There is slight elevation and fulness in right epigastric

* Read before the Montreal Medico-Chirurgical Society, November 30th, 1894.

region extending three inches below ribs on right nipple line and very tender on pressure, and on percussion there is dulness from fifth rib on right nipple line to a line drawn transversely one inch above umbilicus, dulness extending three inches to left of median line; lower part of abdomen somewhat retracted.

Heart.—There is bulging in the præcardia, area of visible impulse increased more towards base; impulse slow, forcible and heaving; apex beat indistinctly felt three-quarters of an inch to left of the nipple line in sixth interspace; continuous dulness from third rib to one inch above level of umbilicus and half an inch to left of nipple line. Loud systolic murmur heard at the base along the sternum, loudest at aortic cartilage and transmitted along crown of aorta, muffled and distant at the apex; second sound heard only in pulmonary area. A presystolic superficial murmur is heard at the centre of sternum opposite junction of fourth costal cartilage and for an inch around that point, and the same murmur apparently in the axillary line three inches beyond nipple line, but not between. Pulse is small and regular.

August 13.—Respiration 28, pulse 108, temperature 97⅗°. Had restless night, no cough, two motions; still taking the deep inspirations and complains of much cardiac distress and sense of smothering.

August 15.—Condition much the same, but suffers from severe pains in the cardiac region, which shoot into left arm. Pulse 140, respiration 30, temperature 100°. The presystolic murmur cannot be heard to-day.

Death occurred on the 16th from asthenia, without any dropsical symptoms having appeared, only accumulation of blood in the lungs.

Pathological report by J. A. Macphail, M.D.

Autopsy 16th August, 1894; the body of a boy 15 years old, twelve hours dead.

Abstract.—The body was well developed and the adipose tissue moderate in amount; post-mortem rigidity was well marked, the whole posterior surface of the body uniformly dark blue with spots upon the abdomen and flanks, the face faintly livid.

The abdomen was laid open and the liver found to extend to the level of the umbilicus on the right side. The omentum was adherent to it by the space of a square inch, injected and covered with secretion, with the veins distended. The liver was found to weigh 50 oz., the surface smooth and mottled, the capsule freely removable. On section it was pale yellow and slightly granular, firm and cut with considerable resistance. The central part of the lobules were of a

deep red colour, surrounded by a zone of yellow, the two parts being mapped out in contrasting colours.

The spleen was small, and the substance soft, friable, dark in colour.

The left kidney was of average size with thick capsule, freely removable, the surfaces smooth, dull in colour, excepting at anterior surface, where the lower border showed a spot the size of a bean of caseous degeneration. On section the cortex and medulla dark red, the pyramids of a brighter colour and both normal in thickness, though much injected, the tissue as a whole soft and engorged with blood. The other urinary and genital organs were normal. The stomach was moderately distended and contained ten ounces of a dark grumous fluid, the mucous membrane injected and inflamed, without any definite lesion, the veins distended with blood. The intestines presented nothing abnormal except in the region of the cœcum, where the vermiform appendix was found bound down to the bowel by its mesentery, curved in itself with a slight band passing over it, indicating an old inflammatory process.

The diaphragm on the right side reached to the fifth rib and on the left to the fifth interspace. After removing the sternum the lungs were seen crowded to the back of the thorax by the heart. The pleural cavities contained twenty ounces of fluid. The lungs were large and russet-brown on the surface with occasional darker patches, heavy, but crepitant throughout. On section they showed a brownish tinge, which on exposure to the air became bright red. The engorgement was marked and fluid transuded readily; where the bronchioles were cut a frothy liquid poured out.

The pericardium was opened and found to contain three ounces of a transparent dark coloured liquid. The heart was much enlarged and on the left side extended an inch beyond the nipple line and down to the seventh rib. The vessels were ligatured.

The heart weighed with the contained blood twenty-four ounces, and was increased in all directions, elongated and pointed; the right auricle was much dilated and the auriculo-ventricular opening admitted three fingers. The endocardium was opaque, the muscle substance pale, coarse and flabby. The tricuspid valves were intact, but at the insertion pale and fibrous. The walls of the right ventricle were a quarter of an inch in thickness, and contained two ounces of clot. The left ventricle contained two ounces of clot and the walls were an inch thick, the muscle substance red, tough and leathery, the cavity stood patent when cut.

The left auricle resembled the right, the mitral valves showed no

marked change. The principal lesion was in the aortic valves. These structures had entirely disappeared and their place was taken by a strong mass of calcareous infiltration. The aortic orifice would not admit a lead pencil and measured only one-third of an inch in the largest diameter.

This case proved more interesting to me from the fact that an autopsy was held—which is usually difficult to obtain in private practice—and the pathological conditions could be compared with the symptoms and results arrived at by physical examination for correction or confirmation.

We have in this case evidence of a chronic endocarditis occurring in a boy and affecting the aortic valve only, which seems to have been chronic from the beginning, as there is no history of any acute attack, or rather disease with which endocarditis is apt to be associated, such as rheumatism, chorea, scarlatina, pneumonia, &c., nor was there any history of over exertion of any kind, or syphilitic factor, and although the condition must have been present for some years, no symptoms had, until near the end, suggested its presence, until the very large liver failed to perform its functions and the stomach was passively congested, when a marantic condition set in. The left heart failed to remove all the blood from the lungs, the right acted forcibly, compensating the increased resistance. Marked congestion occurred, and death took place before the whole vicious circle of cardiac insufficiency appeared.

The superficial character of the diastolic or rather presystolic murmur heard in the region of the tricuspid valves and its transversion to the anterior axillary region, suggested at one time some obstructive condition or roughening at this point, rather than aortic regurgitation or pericarditis or a mitral obstructive lesion, but the pathologist's post-mortem examination report shows that the slight changes in the tricuspid valve could not give rise to the murmur, and the right ventricle was not dilated nor was the mitral affected. Hence in the lower sternal region, at least, it was a modified aortic diastolic murmur, and the murmur heard over a definite area, left of the apex, may be explained by a relative narrowing at the mitral orifice, which sometimes occurs with dilatation of the left ventricle, while the silent intervening area may be accounted for by the moderate effusion present in the pericardium.

The complete recovery from two attacks of appendicitis was interesting in view of the prevailing opinion in favour of operating in all cases.

ON A CASE OF CONGENITAL DEFECT OF THE DIAPHRAGM WITH COMBINED DIAPHRAGMATIC HERNIA.

By F. Fry, M.D.

Resident Physician Royal Victoria Hospital, Montreal.

(From the Pathological Laboratory of the Royal Victoria Hospital.)

In connection with the diaphragm we have to distinguish between three conditions, namely, (1) One of absolute defect (congenital false hernia) with free passage between thoracic and abdominal cavities; (2) true diaphragmatic hernia in which there is thinning of the diaphragmatic substance, so that the viscera protrude into the thoracic cavity, covered over, however, by the hernial layer formed of the thin diaphragm, and (3) acquired false hernia in which, through rupture of the organ, certain abdominal viscera find their way upwards into the cavity. It may be added here that the reverse condition, that is the passage downwards of any of the thoracic viscera does not occur.

Of these forms the so-called false hernia is much the commoner; thus in Leichtensten's 252 cases, 224 were of a false type. True herniæ are rare. The case about to be described must be classed among those of true hernia, although associated with this condition there was also congenital defect.

Thomas L., aged 57, a cook by occupation, was admitted to the medical wards of the Royal Victoria Hospital, under Dr. Stewart, on July 10th, 1894, complaining of great dyspnœa with extreme swelling of the feet and legs. He had been able to work all day long until a fortnight previous to his admission, when he first noticed swelling of his feet and a paroxysmal shortness of breath. During the next week he continued his work as cook in a military camp, where the work was heavy necessitating his standing incessantly. By the end of this time his dyspnœa prevented him sleeping, nor could he lie down for more than a few minutes at a time. His appetite also completely failed him and he subsisted on raw eggs only. He then left camp and worked at odd jobs, never lying up until his admission to hospital. For five days before admission the orthopnœa was constant.

As a boy he was always healthy and strong, as a cook he was always able to work hard; since a youth he had been given to taking alcohol in great quantities, at times to excess and to intoxication. There was no family history bearing on his case; the

only time he had noticed dyspnœa on exertion was five years ago. He was an extremely stout man of large frame, with broad chest and large flabby muscles.

On admission general cyanosis was very marked ; and during the paroxysms of dyspnœa, the face and neck became of a deep purple hue, and the superficial veins engorged and prominent. The pulse was 70, rather small, very irregular and compressible ; respiration was 36. It was difficult to examine the condition of the patient's heart on account of the great amount of fat about the pectoral region ; there appeared to be enlargement of the right ventricle ; dulness extending about half an inch to the right of the median line of the sternum ; the impulse could neither be seen nor palpated ; the heart sounds were very faint, distant and exceedingly irregular ; the heart was beating 110 to the minute, but only 70 beats per minute reached the radial artery. The bases of both lungs posteriorly showed impaired resonance ; at the right base a few crepitations were heard ; on the left, although the dulness on percussion was more marked than on the right side, no adventitious sounds were heard. This difference was not accounted for during life. The liver dulness was masked by intestinal tympany. The urine was scanty, high-coloured and rich in albumen.

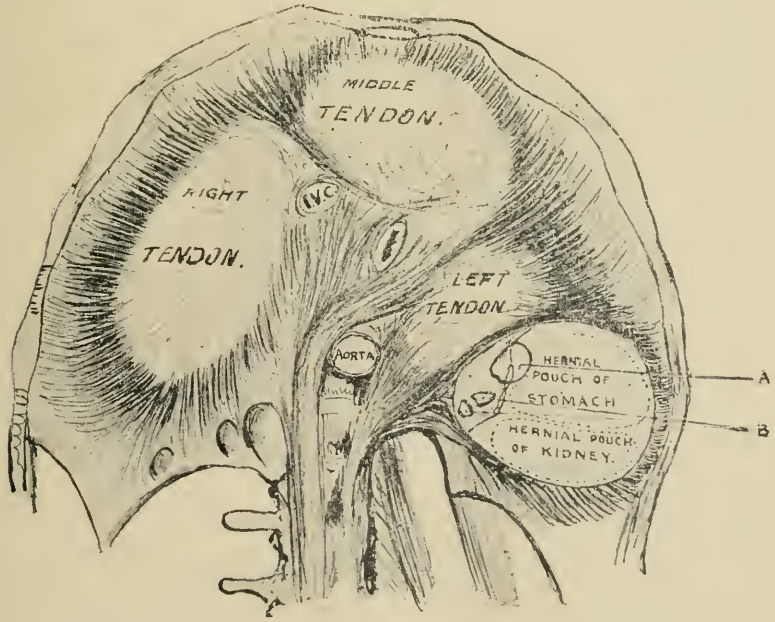
Thirty-six hours after admission the patient died very cyanotic, with the most extreme paroxysms of dyspnœa, with great extending over several hours.

The autopsy, performed two hours after death, showed briefly dilatation of the right auricle, tricuspid incompetence, dilatation and hypertrophy of the ventricles, with fatty degeneration. The condition of the right heart was amply sufficient to account for death. Hydrothorax of both pleural cavities. Both lungs crepitant throughout, with much œdema and some hypostatic congestion at the bases. The liver was relatively small, presenting Liebermeister's grooves ; on section it showed a fatty, nutmeg appearance. Spleen not enlarged greatly ; the right kidney was the large red kidney of alcoholism ; the intestine presented no abnormalities. The other viscera will be mentioned in connection with the diaphragm.

Upon removal of the left lung it was found there projected upwords into the thoracic cavity a large mass of omental tissue, a portion of the stomach and part of the large left kidney. This being the case, the diaphragm was carefully removed in its entirety, with all the organs in connection with the hernia. Previous to its removal the fact that the kidney was so high up led to an examination of the extent of the motility of the organ, and it was found that the

kidney could be moved easily as far upwards as the fourth rib, while there was an equally free motion downwards. On spreading out the diaphragm it was of relatively great size in circumference, and very muscular, save in the hinder portion of the left side. The right and middle tendinous portions were of the usual relative dimensions, the middle being considerably smaller than the right. On the other hand, the left was no more than one-quarter the size of the middle tendinous portion. This made the muscle about the left border of the diaphragm appear unusually extensive. The right crus was readily made out and was stout and prominent, while the left was with difficulty isolated and was comparatively small and thin.

Almost immediately behind and to the left of this left tendinous portion, separated from the edge of the latter by a muscular band 5 m.m. in width, and more prominent, thick, and bulky, than the neighbouring muscular tissue, lay the defective portion of the diaphragm. This may be considered as being composed of two portions, namely a free opening, or more truly openings, extending from the thoracic into the abdominal cavity, and a larger area of thinning of the diaphragmatic tissue. This thinning was so extreme that the wall here was represented purely as a layer of the fused serous coats of the two cavities, with no intervening muscle. This thinned tissue



Diagrammatic representation of diaphragm seen from below, showing position and relative size of hernia. A large and B the small communications between thoracic and abdominal cavities. Over A and B is indicated the commencement of the omental overgrowth.

formed independent coverings over the portion of the stomach protruding as a hernia into the thoracic cavity and over the left kidney. The entire defective area measured 79 x 79 m.m. The gastric pouch or expansion lay, as was natural, in front, the renal behind. The distended diaphragmatic tissue was so thin that it tore easily on manipulation. The true opening was a somewhat triangular aperture, whose greatest diameter was 29 m.m. and whose edges were distinctly smooth, rounded and thickened throughout, there being absolutely no irregularity nor any evidence whatever of recent traumatism. This lay to the inner and anterior border of the defect. From its inner edge there extended a large abundant layer of fatty tissue, similar to that of the omentum, and extending freely into the thoracic cavity. It extended also downwards into the abdominal cavity and was in direct continuation with the large great omentum. It was difficult to follow the connections of this pseudo-omentum, inasmuch as the relations were very much complicated. While the antero-lateral edge was free, posteriorly it became much folded, and appeared to pass imperceptibly into direct continuity with the thinned diaphragmatic tissue. Posteriorly also it seemed to cover over, or indeed, to form the edges of two smaller orifices leading from the thorax to the abdominal cavity behind the stomach.

It is evident from this description that taking into account the age of the patient, the extent of the defect, the absence of symptoms and the anatomy of the parts the case is one of congenital defect of the diaphragm. The extent of the defect and the size of the protruding mass are distinctly unusual. The position also is somewhat out of the common. As a rule congenital defects occur at the junction of the muscular and tendinous portions of the diaphragm. The case is further unusual in the vision that it presents of free communication between the two cavities, together with congenital thinning of the muscular coat of the diaphragm and consequent giving way of the organ.

It might be thought that the orifice was secondary to the thinning, but on the whole I am inclined to regard this opening as due to the fact that there never was in this case complete separation between the abdominal and thoracic cavities. Save on this supposition I do not see how the growth of the omentum or pseudo-omentum is to be explained, starting, as it does, from the very edge of the orifice, in fact as a continuation of that edge. Just as the true large omentum may be regarded as a fold of redundant peritoneal tissue, so here it would seem as though where the serous coat of the thorax passed into the serous coat lining the abdominal cavity there had been a like

redundancy, leading to the development of this large mass of folded serosa containing, as the true omentum is liable to contain, a relatively great amount of fat.

The case is interesting also as affording an example of a condition very rarely recorded in a male, I refer to the condition of the moveable kidney. While in the female this is generally described as being due to looseness of the posterior adhesions of the organ, it is apparently brought about directly or associated with great variations in the intra abdominal pressure. This condition of extreme hernia of the diaphragm in the male might lead and probably did lead to a laxity in the abdominal cavity similar to that which occurs in the female after pregnancy.

Another point to be noticed is the great size and great muscularity of the other portions of the diaphragm. This was evidently of compensatory nature. The case comes under the class of undiagnosed diaphragmatic hernia; the patient had lived for fifty-seven years with such excellent compensation that no symptoms were produced referable to the condition.

A point has been made by more than one observer that this left-sided hernia of the diaphragm is capable of being diagnosed from the fact that the heart is displaced markedly to the right by the protruding abdominal viscera. In this case at the autopsy, as during life, no such displacement was noticeable; the stomach and kidney lay behind rather than to the outer side of the heart.

SOME INTERESTING CONDITIONS ATTENDING POST-NASAL GROWTHS.*

By H. D. Hamilton, B.A., M.D.

Laryngologist to the Montreal Dispensary; Assistant Laryngologist Montrea General Hospital.

In this brief paper it is intended to refer to two cases of post-nasal growths—the term being applied to that hypertrophic enlargement of the lymphatic tissue of the nasopharynx very commonly spoken of as "adenoid vegetations."

In the two cases about to be reported, it will be seen how discredit may fall upon the operation for removal of the overgrowth if the nasopharynx were treated alone and no attention given to the rest of the respiratory tract.

In the examination of both these cases, the post-nasal overgrowth was at once suspected and easily found, but the nasal condition, when examined by the aid of cocaine, was found to be equally at fault.

Having an opportunity of following up the result of treatment closely, it was decided to remove the obstruction from the throat first in one case and from the nose first in the other. By this means it was found that relief from the symptoms was only partially obtained, in each instance, until both parts had been thoroughly treated.

Had the one patient left town permanently after the nasopharynx had been treated, he would have had good cause to complain of the failure of the operation.

Case I.—A lad of 15 years, always delicate, was brought last September to be relieved of mouth breathing and frequent attacks of dyspnœa, with copious mucous discharge from the nose. Since early childhood he had never breathed freely through the nostrils. Bronchitis, pneumonia or croup has afflicted him every winter, keeping him indoors, during all the cold season. Even when free from an acute illness, he has only been out of bed six hours out of the twenty-four, owing to weakness and shortness of breath. The shortness of breath complained of is asthmatic in character, coming on at night when in bed, and every six weeks or so becoming equally bad day and night for a week or ten days. The boy describes his sensations as those "of having a tight-laced vest about his chest, preventing expansion."

* Read before the Montreal Medico-Chirurgical Society, March 22nd, 1895.

On examination, the tissues lining the nasal passages were found to be in a sodden, relaxed condition. The mucous membrane over the middle or lower turbinals completely filled the breathing space and the middle turbinals had a gelatinous consistence, but were not truly polypoid.

In the nasopharynx the pharyngeal tonsil was so large that attention was given to it at once with the hope of thus improving the condition of the nose. The post-nasal space was accordingly cleared of overgrowth, under full anæsthesia, by the ring knives and post-nasal curettes, and after that a full month passed without any asthmatic symptoms, or other ailment. At the first approach of the old trouble of complete nasal obstruction, the boy returned to report and the nasal overgrowth was straightway attacked with cold wire snares and galvano-cautery. Since this has been cleared, the boy has had no recurrence of short breathing, or bronchitis ; he has attended school for the first winter in his life, and has been able to join in out of door sports by day or night.

Case II.—A lad of 16 years was referred to me for relief from severe frontal headaches, accompanied by obstructed breathing. He had suffered constantly for the past two years, never being free from an attack for a week at a time, winter or summer. The pain lasted four or five hours at a time, and was accompanied by sneezing and copious mucous discharge from the nose.

In this case the nasal trouble alone has, hitherto, been treated. The conditions found on examination were almost identical with those noted in Case I., except that the middle turbinals had actually developed polypi.

The result of partial treatment here is encouraging ; for only two very mild attacks of headache have occurred in the six weeks following the work in the nose. The breathing still becomes obstructed at times, and the pharyngeal overgrowth persists.

These two cases, together, in addition to the post-nasal growths, presented nearly all the symptoms of ethmoidal disease as described by Dr. F. H. Bosworth in a paper read last summer at the Washington Congress of American Physicians and Surgeons, hence we might add ethmoidal inflammation to the list of possible results of pharyngeal overgrowth.

Removal of the overgrowth is claimed to be necessary in the above cases, but the writer recognizes the truth of the statement that all such conditions should not be treated in the same way. Where there is the slightest sign of atrophic disease in nose and throat it will be safer to leave the localized overgrowth alone, or the atrophy will be

greatly hastened and finally spread to the whole upper respiratory tract. Often when the obstruction has been successfully removed, the patient's friends do not appreciate the fact for some weeks on account of the relaxed condition of the soft palate consequent upon the stretching necessary during the operation.

The results consequent upon removing enlarged faucial and pharyngeal tonsils, when accompanying such conditions as enuresis or epileptic fits are often rendered unsatisfactory by the length of time allowed to elapse before relief is sought.

THE PREPARATORY AND AFTER TREATMENT OF ABDOMINAL SECTIONS.

By H. McL. Kinghorn, M.D.
Resident Medical Officer, Montreal General Hospital.

The success which to-day attends abdominal sections is much dependent upon the preparatory and after treatment and I have thought it advisable to write this paper on the management of these cases, as such good results have attended operations of this nature in the gynæcological wards of the Montreal General Hospital.

I am indebted to Dr. T. Johnson-Alloway, gynæcologist to the hospital, for permission to use his ward records in preparing this paper.

On admittance to the ward the patient's general condition is examined into thoroughly by the house surgeon and anything abnormal reported to the attending surgeon.

We attach a considerable importance to the condition of the blood, and where the nutrition and general condition of the patient is poor a blood examination, both the amount of hæmoglobin and the number of red and white corpuscles, is made. This is of much service where an immediate operation is not required, as it gives the clue to the proper tonic to give before and after the operation Though not exactly necessary, we think that the blood examination is advantageous before an abdominal section, and in several cases have congratulated ourselves that such an examination had been made, as on this account the operation was postponed. Where immediate operation is required the blood examination is not considered.

Any abnormality of the heart, kidneys or lungs is reported to the hospital anæsthetist in order that he may be ready should any emergency arise at the operation.

After the patient has entered the ward and her condition has been carefully examined, she is placed under thorough hygienic, dietetic and medicinal treatment.

One should see that she gets the maximum amount of rest and sleep, also that the functions of the excretory organs are stimulated. The skin is got in good condition by having her take a hot bath every night and at the same time having the whole body thoroughly scrubbed with a hand brush or loofah. The urine when concentrated should be rendered dilute by large quantities of diluents and alkalies. Special attention should be given to the condition of the bowels and this for three objects—to clear out the canal, to establish as far as

possible normal secretion, and to remove the causes of flatulence whatever they may be. Such laxatives as compound licorice powder, cascara sagrada and magnesium sulphate act very well. A convenient way is to give the patient every morning one drachm of magnesium sulphate every hour or half hour till the bowels act. This tends to relieve whatever congestion of the pelvic organs there may be, and is thus an advantage.

The condition of the tongue is important. It is well to have the tongue clean and moist. Dilute hydrochloric acid given in fifteen or twenty minim doses largely diluted with water and taken slowly after meals acts well where the digestive disturbance is of an atonic character. The rhubarb and soda mixture of the Montreal General Hospital also acts admirably.

The food allowed the patients should be of the most nourishing kind and at the same time easily digested. They are at once put on a liquid diet, which consists of milk, clear soups, tea and coffee, bread and butter, gruel, rice, sago, arrowroot and such like articles, according to the palate of the patients, the idea being to have the intestinal canal in the best possible condition and to avoid giving anything that produces flatulency. Milk should be given in small quantities at a time ; if it disagrees it may be diluted with soda water, lime water or ordinary water. Vegetables such as potatoes are not allowed in the wards.

The medicinal treatment is both symptomatic and tonic. The symptomatic treatment has to deal mainly with pain and with those disturbances of the generative organs which almost invariably attend patients who have to undergo an abdominal section.

Hot douches morning and evening, or oftener if required, of boracic acid solution 10 grs. to the oz. in strength, or creolin 5ii to the quart, or permanganate of potash 4 grs. to the quart of water will be found to give much relief to the patient and at the same time tend, through their stimulating effects, to drive the blood into the general circulation and thus relieve pelvic congestion. These douches should be given at a temperature of 105° F.

The tonic treatment is also of much importance, because the patient is being built up to resist the shock of the operation. If the blood examination shows that a condition of anæmia or chlorosis exists, iron should be given, either alone or in combination with quinine and strychnine.

The patient having been under the above course of general preparatory treatment for a variable time, according to the urgency of the

case and the progress made, now undergoes the special treatment preparatory to the operation.

The previous evening the nurse is told to prepare the patient for operation in the following way: To spread green soap on a piece of lint of sufficient size to cover the abdomen from above the umbilicus to the pubes and across to cover the space between the two crista ilii. The soap poultice is put on the last thing at night and should be left on at least four hours. The skin of the abdomen is made strongly aseptic in the usual way.

The patient then having been thus prepared is taken to the operating theatre and made ready for the operation. We will leave her while she is there and speak of the treatment to be pursued after she has been operated upon.

Where much shock is feared instructions should be left with the nurse in the ward to have the appliances ready should there be need of stimulation. The preparation of the bed is left to the nurse.

Where the condition of the patient is very low, a saline enema ʒi of salt to the pint of water 100° F. is given. A hypodermic of strychnine $\frac{1}{60}$ to $\frac{1}{20}$ gr., or digitalin $\frac{1}{100}$ gr. may be given. With a condition not so extreme but yet requiring stimulation, enemata of beef tea ʒiii and ʒi of brandy or whiskey have been found to act admirably. They may be repeated every three or four hours. Enemata should be given at a temperature of 100 to get the best results, and when continued for any length of time should be peptonized.

We give a nutrient enema even before the patient has become conscious where there is any indication for its employment. Otherwise the first nutrient enema is given when she has become sufficiently conscious to retain it well.

The treatment during first twenty-four hours following the operation is that she should keep very quiet and receive no nourishment by mouth. Twelve hours after, a teaspoonful of hot water may occasionally be given to her. At the end of twenty-four hours a teaspoonful of equal parts of milk and lime water, or milk and soda water, or rice water, or barley water may be given every hour and gradually increased if the stomach is not rebellious. The nutrient enemata may be continued with advantage until the stomach is strong enough to allow the patient to take sufficient nourishment. Milk diet is continued for two days, and if at that time there are no contraindications, such as an elevation of temperature, the diet may be gradually changed. The vomiting and pain which almost invariably follow an abdominal section should, unless very severe, not be treated, as within twenty-four hours both will have much diminished. Keep-

ing the stomach empty has been found to be the best remedy to control vomiting. Instructions should be given to the nurse to catheterize the patient if necessary every six or eight hours, care being taken to avoid the introduction of vaginal secretion into the bladder. This is prevented by washing the genitals with 1-40 carbolic lotion or some other antiseptic previous to passing the catheter.

The complications that follow an abdominal section have been greatly reduced by such preparatory treatment as is at the present day employed. They do, however, occasionally arise, and then cause much annoyance to the surgeon. But by endeavouring always to anticipate any mishaps that might possibly occur the best results are obtained and complications are often avoided.

In favourable cases the cessation of vomiting is usually to be expected within twenty-four hours. Should, however, the stomach still continue to be irritable and resist all medicinal efforts to quiet it, nothing should be given by the mouth, and the rectal enemata should be continued till the gastric irritation has ceased.

At any time after the operation the patient may rinse the mouth with hot water but not swallow it. Ice should not be given as it increases the thirst.

The relief of pain introduces the much mooted subject as to whether opium should be given or withheld. We favour the view that opium should not be given unless all other means have failed to quiet the patient. It was formerly the practice everywhere after an abdominal section to keep the patient under the influence of an opiate sufficient to relieve pain, with the bowels as a result constipated for a week or longer. Should symptoms of peritonitis supervene, the administration was to be increased. We are wholly opposed to this and administer opium only as a last resort, when no other means will control the pain from which patients do occasionally suffer.

We have found that on several occasions where calomel and soda, of each five grains, had been given to evacuate the bowels preparatory to the operation that fifteen trituratis, given after the operation, of one-tenth of a grain of calomel, one given every half hour, has produced a severe mercurial stomatitis. This corroborates the well known fact that calomel in small doses tends to produce mercurial poisoning more quickly than it does in large doses. We therefore prefer to give castor oil as the first purgative after the operation. After the bowels have been thoroughly purged care should be taken to have them move daily, either by a soap suds enema or by a saline or some other laxative. Where nausea is persistent and the patient cannot retain the oil, a good plan is to give from six to ten grains of calomel in a single dose; this they retain.

In cases that run the usual course the temperature should not at any time exceed 99° or 100° F. A slight rise in temperature is always seen the day following the operation and is due to a variety of causes. Should the temperature rise above 100° or 101° at any time during convalescence the administration of a laxative to empty the bowels is at once indicated, when a fall of temperature will result. Sometimes, especially in pus tube cases, there is seen a shoot up of temperature to 102° or 103° with a corresponding increase in the pulse rate, but a brisk purgative will usually bring the temperature down as rapidly as it had gone up.

The pulse should not as a rule go higher than 80 or 90. A rapid pulse with a low temperature should not occasion any anxiety, as it is due to anæmia or to the shock of the operation. A slow pulse and a high temperature usually indicates a low form of peritonitis.

The abdominal dressing need not be looked at during the first week unless either pain or persistent elevation of temperature leads to the supposition that that there may be something wrong with the stitches, possibly the formation of mural abscess. As a rule the sutures are removed on the tenth day. The abdomen is then washed with a 1-2000 sublimate solution and collodion and absorbent cotton put over the incision, no further dressing being required.

A certain amount of abdominal distension is frequently observed after a cœliotomy, and though it should be looked for, guarded against and treated immediately, it need occasion no alarm. A sharp purgative will tend to reduce it, but should the purgative prove ineffectual and the tympanites increase, a soap suds enema with half an ounce of turpentine will be beneficial. The soap suds enemata without the turpentine may be continued, one every hour should the tympanites continue.

As regards septic peritonitis, we have not had a single case under observation and therefore cannot from experience speak of its management.

When drainage is thought necessary the glass tube with capillary guage drain inside, the rubber tube, the gauze drain or combined gauze and rubber are the methods employed.

At the end of the third week she is allowed to sit up in bed and a day or two after she is allowed to leave the hospital, with instructions to wear an abdominal support and report herself at the hospital from time to time.

Clinical Reports

CASE OF ICHTHYOSIS TREATED WITH THYROID EXTRACT.*

By W. E. Deeks., M.D.

Helen L., aged 20, born in England, came to this country about five years ago, says that as long as she can remember her skin has been rough, worse on the arms and legs than over the rest of the body and in the winter than the summer, that it was never itchy nor gave her any inconvenience apart from the appearance.

About four years ago it began to get worse, especially over the extensor surfaces of the legs, and in about six months had extended over the whole body. She then consulted a physician, who prescribed arsenic in solution and a lotion. This was continued for six months without any beneficial results. She afterwards consulted another physician, who has been treating her up to a few months ago.

I was called to see her on the 14th of May for an ingrowing toe-nail and at once noticed the peculiar condition of the skin of the legs, when the above history was elicited. To all appearances she was chlorotic, her mucous membrane pale, sclerotics pearly white, was weak and her skin over face and hands was rough and the latter chapped. Over the extensor surfaces of the legs the skin was thickened, of a dull waxy or pasty appearance, much thickened, marked off in polyhedral spaces and did not scale readily; when it was separated it was in large irregular plaques. The forearms were similarly affected but not so severely, and the whole body was covered with a scaly dry skin, more marked on the extensor surfaces. It had evidently from childhood been present to a greater or less extent, as she distinctly remembers having lotions applied to her face and hands when very young. The nails and hair were unaffected. A diagnosis of ichthyosis simplex was made and on that date iron in the form of Blaud's pills was prescribed. On the 20th of May, Parke, Davis & Co.'s extract of thyroid was given in five grain doses three times daily and on the sixth day I was again called to see her and found her suffering from languor, malaise and nausea, evidently much depressed, with a soft rapid pulse.

The extract was discontinued for two days, when these symptoms disappeared, and then one grain doses were begun three times daily.

Read before the Montreal Medico-Chirurgical Society, June 25, 1895.

At the end of two weeks this was increased to two grains three times daily and at the end of a month was discontinued, as the patient was entirely cured. After a week's treatment the apparent condition of the legs and arms was aggravated, as large furfuraceous scales were being thrown off, but over the rest of the body the skin was softer, more flexible, the scaly appearance had disappeared and she began to feel better than she had for years.

Two weeks later when I saw her again a remarkable desquamation was taking place over the legs, resembling very much that following erysipelas. Large scales were given off and underneath the skin was soft, pliable and had a silky appearance. The arms were completely cured, and one month from the time she began to take the thyroid extract the only remains of the ichthyoid condition were a few of the dried scales near the ankles, and these were fast disappearing.

Her colour and appearance had greatly improved and she declared that she never felt so well in her life.

I consider the above condition to have been a mild form of congenital simple ichthyosis resulting from a disturbance in some way of the nutrition of the skin, possibly through insufficient thyroid activity, and that the administration of this directly supplied the necessary element to effect a cure.

TWO CASES OF BELLADONNA POISONING.

By John A. Hutchinson, M.D., Westmount.

Case I.—I was called on the 10th of May last to see a servant girl who had swallowed a tablespoonful of belladonna liniment, thinking it was some stimulant. The fact that she had taken the poison was not known until several hours afterwards, when she was noticed to be ill and acting foolishly. She acknowledged that she had taken the belladonna and her mistress gave her an emetic which acted promptly. An hour after this I saw her, when she presented the following symptoms:

The face was suffused, pupils were largely dilated. She could stand upright, but could not walk without staggering; could answer questions well enough, but was rather incoherent and did not talk sensibly. Pulse 125, temperature 99°, and breathing rather fast. Complained of a queer feeling in her eyes and great dryness of the throat.

I gave her 20 drops of tinct. opii. as an antidote. The next day she appeared to be all right, except a strange feeling in her eyes and a dry throat.

Case II.—On July 5th I was called to see a man aged 48, who had swallowed by mistake a dessert-spoonful of a liniment of belladonna and chloroform. He had taken this on an empty stomach and a short time afterwards ate a hearty meal. About an hour after this he felt ill, could not walk straight and talked incoherently. His wife then discovered that she had given him the above dose from a bottle labelled "Poison—Liniment." I saw him about three hours after the poison had been taken. His pupils were widely dilated, face intensely suffused and breathing fast; pulse 135, temperature 99½°. He was talking in a delirious manner; could not stand. After his stomach was emptied by an emetic he was told to lie down. He began to crawl about the room and act like a lunatic. He was given half a grain of morphia hypodermically; this had a quieting effect. As no urgent symptoms occurred he was allowed to sleep off the effects of his combined mixture of belladonna, chloroform and now morphia added. The next day he turned up smiling, but with a very dry throat and a dizzy head.

In both of the above cases the dose of belladonna must have been almost all absorbed before I saw them and there was no use in washing out the stomach. The dose of opium in both cases acted admirably. The active delirium in the last case after taking the morphia subsided and did not return.

In neither of these cases was the dose sufficient to prove fatal after the stomach was emptied, but certainly the opium had a counteracting influence to the symptoms arising from the belladonna.

RETROSPECT

OF

CURRENT LITERATURE.

Surgery.

Treatment of Gonorrhœa.

VALENTINE. "Treatment of gonorrhœa by irrigations of permanganate of potash."—*Journal of Cutaneous and Genito-Urinary Diseases*, June, 1895.

The method of the treatment of gonorrhœa by irrigations of permanganate of potash by Professor Janet, of Paris, introduces three new procedures:

1. Irrigation of the whole urethra instead of injections of small quantities of solutions.

2. Forcing fluids back into the bladder without the aid of a catheter.

3. Applying such pressure to the fluid in the urethra that it distends the urethra and enters all the glandular spaces occupied by the gonococci.

The apparatus consists of a glass irrigator capable of holding two thousand grammes; to this is attached a rubber tube 300 centimetres (about 120 inches) long, whose free end is slipped over a glass nozzle about seven centimetres long and six centimetres in circumference and running to a blunt point, which can easily be pressed into the meatus to occlude it entirely. Frank, of Berlin, uses a nozzle with an entirely flat point for very sensitive cases with exceedingly small meati.

At first the strength of the solution is 1 in 6,000, and as tolerance is established the strength is increased to 1 in 4,000, 1 in 2,000, and finally 1 in 1,000.

The solutions are used warm. The irrigator is placed about two and a half metres above the table on which the patient lies.

The prepuce, glans, corona and meatus are carefully cleansed. The nozzle is held into the meatus and the anterior urethra thoroughly washed out. Then while the patient breaths or makes efforts at

urination the solution is passed through the urethra into the bladder. From two to five hundred grammes are allowed to flow in and the patient is allowed to eject it. These injections are made three or four times on the first days, twice on the second, third and fourth, and if required, on the fifth day, when usually all gonococci have disappeared; then once a day until all discharge has ceased, which in Janet's most severe cases occurred on the tenth day.

Before each injection a slide is made for microscopic examination. In the first and second day but little change occurs. Thenceforward they become sparser, and generally on the fourth day have a swollen appearance: the lumen between each pair of gonococci seems wider and nowhere can any further tendency to segmentation be observed.

To decide whether the patient is really cured or not an irrigating injection of argent nit., say 2 grs. to the oz., is made. This sets up a free discharge in six to twelve hours. If this discharge contains no gonococci it will cease, as any simple urethritis, in a few days. If it does not cease in a few days, or if found to contain gonococci, then the treatment is carried on for another week and the test re-applied.

Routier would not interfere during the first ten days of an acute attack, except to give an alkaline bath every three days and to insist upon the wearing of a suspensory bandage. About the tenth day of an acute case, or at once in a case that comes for the first time after the acute symptoms have passed, permanganate of potash irrigations are given as above. He generally effects a cure in eight days.

The patient should be instructed to pass water before each irrigation, but it is claimed that a few gonococci may be washed into the bladder with impunity.

During the early stage, while the disease is confined to the anterior urethra, that part of the urethra only needs treatment.

Perforation of Gastric Ulcer.

BARLING. "Diagnosis and treatment of perforation of gastric ulcer." —*British Medical Journal*, June 15th, 1895.

In his third Ingleby lecture, Prof. Barling discusses the diagnosis and treatment of perforation of gastric ulcer. He first discussed the anatomy and relations of the stomach, laying stress upon the oblique and almost vertical position of the stomach, with the lesser curvature facing almost to the right and upon the relations of the left subphrenic space. He condemned the proposal to excise gastric ulcer which had not perforated, but thought the operation practiced by Kuster was a distinct advance in the surgery of the stomach.

This surgeon had operated upon two patients suffering from

hæmatemesis and dilatation of the stomach. He opened the anterior wall of the stomach, applied the actual cautery to the ulcer and then performed gastro-enterostomy, both patients recovering. A large majority of these ulcers occur on the posterior surface and lesser curvature, a few occupy the region of the pylorus, and a still smaller number involve the anterior surface of the stomach.

The incidence of perforation does not, however, in the least degree correspond to the incidence of locality : ulcers on the anterior wall perforate with great frequency, those on the posterior surface, rarely in proportion to their actual number, whilst those on the lesser curvature perforate comparatively often.

The explanation of this varying tendency to perforate is found mainly in the relation of the stomach. The posterior surface and, to a less degree, the smaller curvature tend, with the advance of the ulcer to the surface, to become adherent to adjacent parts. The anterior surface on the contrary, owing chiefly to mobility, rarely becomes adherent.

Apart from the existence of protecting adhesions, he thinks another influence may have something to do with the frequency of anterior perforation. The symptoms of ulcer on the anterior wall are apt to be less marked than those on other parts of the stomach, and they are occasionally quite wanting. Hence the subjects of them are probably careless as to the quantity and quality of their diet, and the ulcers are more subject to undue stretching and to traumatism which are the final causes usually of perforation.

The liability to perforation is greatest in young women between the ages of 17 and 25. There is also a certain liability, though nothing like so great, in males, and in them the incidence is chiefly between the years of 40 and 50.

It is a matter of supreme importance to be able to recognise these cases at once, that as little time as possible may elapse during which the contents of the stomach are escaping and setting up septic peritonitis.

The symptoms mostly to be relied upon are, a history of stomach indigestion, the time of the last meal, and the particular act the patient was engaged in at the moment the rupture occurred. Perforation almost always occurs when the stomach is full or partly so, commonly when the patient is in a more or less vertical position, and frequently from some particular act or exertion, such as stooping to pick up something, sneezing or lifting a heavy weight.

The onset of pain is sudden and intense, often accompanied by faintness or collapse.

The abdominal wall will now be found to be retracted and the muscles rigid, as though by packing the viscera together they were endeavouring to limit extravasation.

Respiration is usually entirely thoracic, quick and shallow, the temperature sub-normal and the pulse quick and feeble.

From this onset, Prof. Barling states, there may follow : 1. A rapidly spreading septic peritonitis, proving fatal in 12 to 14 hours ; 2. or it may remain for a time localised between the stomach and the liver ; 3. or it may run a chronic course and end in a subdiaphragmatic abscess, the opening in the stomach closing.

If a subdiaphragmatic abscess forms on the left side septic pleurisy often occurs secondarily.

In operating in such a case, Prof. Barling would first make an opening over the most prominent part of the tumour and then make an opening through the thorax in the mid axillary line, removing two to three inches of the eighth rib. The lung retracts out of the way and the diaphragm is exposed. If empyema or lung abscess are present they can now be dealt with as thought best. If they are not present, the diaphragm should be stitched with a ring of sutures to the edge of the wound in the parietal pleura, and either opened at once or, perhaps better still, packed and left until the next day to secure adhesions between the pleural surfaces. A finger passed into the abdominal opening should guide the operator as to the point at which the opening in the diaphragm should be made so as to get as completely as possible to the bottom of the collection and get with safety to the spleen. In operating on the acute case, Prof. Barling does not excise the edges of the ulcer, but simply closes with a Lembert suture. If the diagnosis is clear the operation should be undertaken as soon as the collapse is sufficiently recovered from to enable the patient to bear an operation that may be somewhat prolonged.

Prof. Barling estimates that without operation 95 p.c. of cases of perforation of stomach prove fatal.

He has collected 37 cases of operation with 13 recoveries. We can expect even better figures in the future with a better knowledge of the symptoms and an improved technique.

G. E. Armstrong.

Pathology.

Typhoid Abscesses in the Kidneys.

FLEXNER. "A case of typhoid septicæmia associated with foul abscesses in the kidneys due to the typhoid bacillus."—*Journal of Pathology.* III. 1895, p. 202.

The discovery of the typhoid bacillus in pure culture in connection with a joint abscess, recently reported in this JOURNAL by Dr. C. F. Martin, may well be followed up by a *resumé* of recent literature upon the occurrence of this bacillus in regions other than those which form its usual habitat in cases of enteric fever—and Dr. Flexner, with the excellent bibliography which he has appended to his article, has lightened our task considerably.

In individuals who have died of typhoid, provided death has occurred not too late in the course of the disease, it is usually possible to cultivate the bacillus from various organs—from the intestinal walls, mesenteric glands, spleen, liver, and kidneys, and, as has been repeatedly found at the Johns Hopkin's pathological laboratory, from the bile. Recently Quincke has pointed out its frequent presence in the bone marrow and, as Chantemesse and Widal, Eberth and several other observers have shown, it has been discovered in the fœtal organs in cases of abortion. Evidently then, judging from this distribution, the bacillus must enter the blood stream and be thereby conveyed to various regions.

Nevertheless, as a rule, the bacillus is not detected in the blood. Such capable observers as Fränkel and Simmonds and Sittman failed to find it—although it may be added that equally capable investigators like Karlinski and Vincent have recorded its discovery there. The general experience is that such discovery is exceptional, so that Flexner's explanation may be correct, namely, that the bacilli entering the blood stream are in general rapidly destroyed. We are not wholly satisfied, however, with this explanation. While human blood serum outside the body is capable of destroying large numbers of typhoid bacilli, it by no means follows that the plasma of the living blood have these properties to the same extent. In all probability it has not, and it may be, simply, that the bacilli do not *multiply* in the circulating blood, while such as are present in any sample removed for inoculation purposes are destroyed by the modi-

fications that the blood undergoes upon removal. The very fact that the mesenteric lymphatic glands and the spleen are the regions in which the bacilli are most surely to be found is in favour of the supposition that the baccili tend, as it were, to be filtered out of the lymph and blood rather than destroyed therein.

In general, save in the regions already mentioned, the bacilli are not discernible, and in these regions (with the exception of the intestines) they induce very little change beyond at most some proliferation and accumulation of lymphoid cells. Yet just as under certain conditions the diplococcus of pneumonia may affect organs other than the lungs, and may cause suppurative otitis media, meningitis, ulcerative endocarditis and other evidences of septicæma (*i.e.*, of presence of the pathogenic microbes in the circulating blood) or, as was indicated in our last number, the gonococcus may induce abscess formation in parts far removed from the primary lesion, so also under certain conditions the bacillus of typhoid is capable of inducing a septicæmia, and under these conditions it is the cause of definite and indeed typical abscesses. At least ten observers have found the bacillus in connection with local inflammations of bone—in cases of osteomyelitis and periostitis—there are five cases on record of abscesses of skin, muscle and periarticular regions, six cases of cerebro-spinal meningitis.

Flexner and two other observers have found the bacillus causing abscess of the spleen; Chiari and Gilbert and Girode have seen it causing purulent cholecystitis. Several other observers have found it associated with pleurisy and empyema, in suppurative strumitis, orchitis and epididymitis, while three cases are on record (Carbone, Vincent, Girode) in which it has been obtained in pure culture from ulcers of the heart valves. In all these cases, it may be added, there had been a previous attack of enteric fever. In a large proportion of these ample care had been taken to make sure that the form described was not the nearly allied bacillus coli communis.

Dr. Flexner's case here described is most instructive and has been studied with remarkable fulness. The subject, a coloured girl æt. 18, an inmate of Dr. Osler's wards, died three weeks after the onset of an illness characterized by only moderate fever, diarrhœa, mental dulness and delirium, enlarged spleen, small amount of albumen, with some red corpuscles in the urine, but no *diazo* reaction, cutaneous hyperæsthesia and increased reflexes, and in addition parotitis. At the autopsy typhoid ulcers were found affecting the Peyer's patches, as also the solitary follicles of the cæcum and colon. The spleen was large, the kidneys presented numerous small white nodules larger than miliary tubercles in the cortex. In the right kidney were

whitish triangular vessels of still larger size. Cultures of the typhoid bacillus were obtained from the spleen, mesenteric glands and bone marrow in abundance, from the nodules on the kidney, from the lungs, and again from the heart blood. The swollen and purulent left parotid gland yielded pure cultures of the streptococcus pyogenes, which was also found in the lungs.

Microscopical examination of the kidneys showed the white masses to be true abscesses with collections of pus cells and typhoid bacilli. Here and there glomeruli could be seen containing the bacilli in their loops and also in Bowman's capsule. It seems clear that the infection of the organs had been brought about by the passage of the microbes through the glomerular walls.

This was clearly a case of typhoid septicæmia or, indeed, typhoid pyæmia. It may be asked why the bacillus is occasionally able in this fashion to induce such extensive metastatic disturbance. Two causes, speaking broadly, are capable of bringing this about—either heightened virulence of the microbe, or lessened constitutional resistance. Flexner indicates that not improbably the second cause was operative here and that lessened reaction on this part of the system may have been due to the concurrent parotitis, multiplication of the streptococcus pyogenes, and consequent diminished bactericidal power of the blood. We have already hinted that we would prefer a broader conception of bactericidal action, and would see in the anatomical changes induced by the typhoid bacillus in the different states a distinct evidence of altered cellular response; in cases of medium severity an accumulation and proliferation of lymphoid cells, in these severer cases a production and accumulation of pus cells proper; otherwise the suggestion seems to us eminently plausible and is in harmony with what we know concerning the dangerous aspect assumed by other zymotic diseases when complicated by the presence and action of the chain coccus.

Curchsmann's Spirals.

Gerlach, W. "Die Entstehungsweise Curchsmannscher Spiralen und der sog. gewundenen Harncylinder."—*Deutsch. Archiv. F. Klin. Medicin*, LIII., p. 189; also *Fortschr. d. Medicin*, XIII., 1895, p. 448.

Gerlach points out that thin threads attached by one end to the tracheal wall tend to become spirally wound by the action of the alternating currents of inspired and expired air, and supports Schmidt as against Senator in regarding Curchsmann's spirals and coiled urinary casts as caused by alternating currents.

J. G. Adami.

Diseases of Children.

Return Cases of Scarlet Fever.

"What is 'premature discharge' from a fever hospital?"—*The Lancet*, April 13, 1895.

"'Return' cases of scarlet fever."—*The Lancet*, June 8, 1895.

A. K. Chalmers. "'Return cases of scarlet fever."—*The Lancet*, June 22, 1895.

Under the caption of the first question the *Lancet* in an editorial called attention to the report of the Islington medical officer of health, in which he makes reference to cases of scarlet fever which have arisen shortly after the return home of children discharged from the hospital. In one case a child sent to the hospital certified as a case of scarlet fever, but in reality a case of eczema, according to the statement of the medical superintendent, developed scarlet fever four days after admission. Sixty-two days afterwards it was dismissed as cured, although still suffering from an eczematous condition of the hands and feet. Four days after its return home the child's sister developed scarlet fever. The medical officer of health on examining the child sent home considered that it had not completely desquamated and that it had been prematurely discharged. In a second case a child admitted to hospital on September 22nd was discharged on November 23rd, and on November 28th a brother with whom the child slept on the night of its discharge developed scarlet fever, and shortly afterwards two other children showed similar symptoms. On December 6th the discharged child was seen by the medical officer of health, who found patches of dandruff in the hair and a slight but perceptible desquamation on the eyebrows. The *Lancet* asks the question, is there not such a thing as recurrent desquamation, and may not a patient discharged with a clear skin subsequently in a fresh environment evince a partial re-desquamation?

The whole of this subject is carefully investigated by Dr. Chalmers, medical officer of health for Glasgow. In his paper he says that it is usual to assume that the explanation of the new infection is to be found either in the earlier patient or in his clothing. The patient may bear evidence of still being infectious, but there is also some reason for believing that the termination of the period of infectivity

may not coincide with the disappearance of the clinical signs, or, in other words, the power to transmit infection would in some instances appear to attend a patient after apparent recovery. Moreover, we have of late been made familiar with the phrase "recurring infectivity" as a clinical fact of occasional occurrence in cases of diphtheria, and the term would seem to be equally applicable to certain cases of scarlet fever. A third possible source of re-infection may lie in the household of the patient, but here it is to be remembered that the secondary cases are almost always resident at home and unaffected till the return of the hospital patient. The writer discusses the question of clothing at home being the source of contagion, but does not think that will account for more than a small percentage of the cases. During the year 1894 nearly 2,593 cases of scarlet fever were treated in the Glasgow hospitals, and subsequent re-infection appeared in 70 of the houses to which these patients returned, or in 2·6 per hundred dismissals. The strictest investigation was made in all these cases. A record was taken of the number of days intervening between the date of the return of the one and the sickening of the other and the length of residence in hospital of the former case. This case was also examined for the existence of desquamation, nasal or aural discharge, excoriations, etc., in general, anything which could be regarded in the light of a lesion, and when such was found the ward journals in the hospitals were subsequently examined for a history of the case. Inquiry was also made regarding the amount of intercourse which had taken place between the earlier and more recently infected cases, and as to the clothing which had been worn. In reference to the length of residence in the hospital it is stated that the minimum period is eight weeks. The criteria for dismissal are that the patient should be in good general health. All the cutis must have separated and the surface of the body be quite intact. There must be absence of discharge from ears or mucous surfaces and the urine must be clear. Cases have sometimes to be dismissed with chronic ear discharge or albuminuria, but are never so dismissed under three months. On dismissal a complete bath with free use of carbolic soap is taken, and clean non-infected clothes are put on. Most careful precautions are taken with all clothing arriving at the hospital with the patient, and it would appear that these must be excluded as a source of infection.

Of the re-infections 93 per cent. occurred within a fortnight after the dismissal from the hospital, the remainder in the third week. With reference to the latter he says: "In the investigation I practically took every case coming to my knowledge. Where infection

reappeared in a household, and when it became evident that the recurrence of lesions subsequent to dismissal from hospital had at least a time association with cases sickening as late as the fifteenth or sixteenth days, it was difficult to know when absolutely to exclude others when the connection was not so apparent. To such cases where lesions reappear I am disposed to think we should restrict the term "recurring infectivity," for there are others where no lesion is apparent, but where there is ample ground for the conjecture that the power of transmitting infection is retained after the lesions have ceased.

By far the most obvious connection between the primary and secondary infections exists in those cases where desquamation or other physical and easily recognizable lesion is found on the primary patient, even although he may have been detained for the full period in the hospital and at the time of dismissal desquamation had ceased and the patient was in perfect health. This occurred in 19 cases. In 8 of these there was desquamation, 8 more presented sores (excoriations, eczematous patches, etc.) on the lips, ears or head; in 5 there was a discharge from the nose, 2 had a discharge from the ear, and 1 had a sore throat. With reference to these he says: "It is easy to understand the recurrence of a discharge from the ear when it has once been invaded by suppurative inflammation,but the inference from these cases is that it may also be associated with a recurrence of the specific infectivity which at first gave it origin. Again, evidence of desquamation on some part of the body was present in nearly half of the number in which lesion was discovered, and it is impossible to regard its occurrence at the time of the secondary illness only in the light of a coincidence.

In connection with these recurrences he lays some stress on the altered conditions on the child's return home compared with the strict discipline and regular meal and sleeping hours of hospital life. Undue strain, he says, is often thrown on one or other of the functions of assimilation and excretion, the physiological balance is for the time destroyed, and an error in dietary, resulting in disordered digestion, may find expression in the skin relapsing into a condition from which it had but lately emerged.

Again, in those hospitals where the wards are continuously full, and the cubic space allowed per head for each child is limited, the writer thinks there is always a tendency for dismissals to become associated with return cases. A saturation of the system, in his opinion, is the result of such a condition, due either to delayed elimination, or to the constant breathing of a saturated atmosphere, in which, notwithstand-

ing ordinary precautions, the discharged convalescent becomes a danger to susceptible persons who may be brought in close contact with him. From the analogy of diphtheria it is possible that an unrecognized retention of infection may take place in the nares or fauces, or even further down the respiratory tract, and an effort was made to disinfect these, but the observations are as yet too incomplete for deduction.

In reference to the amount of intercourse that had taken place between those dismissed from hospital and those sickening during the first week, 30 per cent. occupied the same bed and more than 60 per cent. occupied the same room, and in all the instances the contact had been very close.

In conclusion, he questions whether the nimbus of infection which attends a convalescent scarlet fever patient is capable of removal by soap and water, and strongly urges that every effort should be made to prevent commingling as far as practicable of the recently recovered with healthy children, and an absolute restriction should be placed on their sleeping together. In a few cases, certain leisons, chiefly desquamation and discharges from the ear and nose will recur and may be infective.

Dr. Cooper-Pattin, medical officer of health for Norwich, reports (as quoted by the *Lancet*) 11 cases of scarlet fever which occurred in connection with patients discharged from the Norwich Fever Hospital. His observations accord very closely with those of Dr. Chalmers. Rhinorrhœa, which had ceased at the time of discharge, may recur after a short interval, and may apparently be instrumental in conveying infection to other members of the family. Secondary peeling occasionally takes place, and may, in the doctor's opinion, account for some of these "return" cases. In three of Dr. Cooper-Pattin's cases the secondary infection was due to infected clothes put away in the early stages of the patient's illness, before, perhaps, its nature was recognized. Dr. Chalmers in his records has endeavoured to guard against this accident. In regard to the whole subject the *Lancet* says: There is an accumulation of evidence pointing to recurrent nasal discharges as a source of infection, but we have not ourselves come into contact with cases where the awakening of infection in the family of a discharged patient suggested secondary desquamation as the cause of it. However, it is a difficult matter to dogmatize on. "Return" cases of scarlet fever are certainly sometimes associated with unfinished primary peeling. A short time since we asked, What is premature discharge from a fever hospital? and we commend the above considerations to those who with ourselves are anxious to furnish an answer to the question. *A. D. Blackader.*

Practical Notes.

Growing Pains in Children.—Growing pains defined as pains in the limbs of children caused by and met with during rapid growth, sometimes so severe as to give rise to growing fever, have been diagnosed by the author less and less frequently as the years rolled by, until the vanishing point was reached. Cases which have been classed together under this name are the following :

Myalgia from Fatigue.—This is the commonest variety, noticed usually about the knees and ankles after unusual exertion. They are probably due to auto-infection brought about by excessive production of effete materials in the blood, and their inefficient elimination. Elevating the limbs, and rubbing them with the palm of the hand in a direction toward the heart, thus relieving venous stasis, and facilitating a supply of healthy blood to the exhausted muscles, promptly relieves the pain.

Rheumatism.—This is second, if not first, in frequency. There is slight pain in the joints, little or no swelling, and very mild fever, and hence the true cause is not recognized ; but rheumatic endocarditis frequently develops in these cases.

Diseases of Joints and Bones of the Lower Extremities.—Cases of hip-joint disease and suppurative epiphysitis of the upper end of the fibula, diagnosed by the laity and allowed to go on untreated, are occasionally met with.

Fevers—Accompanied by pains in the limbs, in one instance proving to be the beginning of typhoid fever, constitute another class.

Adenitis.—A lad of sixteen years, said to be suffering from growing pains, was found on examination to have gonorrhœa and a sympathetic bubo.

The malady "growing pains," with its frequent concomitant "growing fever" like the disorders of dentition, exists principally as an article of faith. The complaint still maintains, however, a strong hold of the lay mind, and forms an extremely common lay diagnosis, which is often the cause of much suffering, and even death, by leading to the neglect of the curative measures at a time when they are most effective.—*Archives of Pediatrics*, May, 1895.

Management of Eczema in Children.—A paper on the above subject was read before the British Medical Association by Dr. Malcolm Morris, who called attention to the following points :

1. *Internal Medication in Eczema.*—The writer does not think internal medication required, unless some constitutional dyscrasia underlies the skin affection. When the disease is inflammatory, local

treatment may be relied upon entirely. Of medicines to be given internally, antimony is most valuable. In neurotic cases the sheet anchor is opium. If this disagree, some other sedative may be given. If there is much depression, quinine may be combined with opium. If the discharge is abundant, belladonna may be combined with the quinine. Phosphorus, strychnia and arsenic are useful in selected cases, but the last must be used with caution, or it will do harm. Cod liver oil and general tonic treatment are indicated when malnutrition and anæmia are present. Iron is contra-indicated when acute inflammation is present.

2. *The Influence of Diet in Eczema.*—The author does not believe that the diet has any influence except indirectly.

3. *The Principles which Should Underlie Local Treatment.*—Speaking generally, every case should be treated as if it were of parasitic origin. The objects aimed at should be, first, to destroy microorganisms ; second, to protect the inflamed surface from the air, and from further microbic invasion ; third, to sooth irritation. We should soothe when the inflammatory process is acute, stimulate when it is chronic, and in either case keep the parts continuously under the influence of antiseptics.—*Archives of Pediatrics*, June, 1895.

A. D. Blackader.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

JUNE, 1895.

THE CANADIAN PRACTITIONER.

(1.) Displacements of the liver—J. E. Graham, Toronto, p. 389.

Operations for the removal of ovarian tumours—A. Vander Veer, Albany, N. Y., p. 428.

Staining fresh tissues by the aid of formalin, T. S. Cullin, Baltimore, p. 450.

(2.) Medical evidence in the Hyams' trial, p. 452.

THE CANADA LANCET.

On the radical cure of inguinal and femoral hernia by operation—Alex. H. Ferguson, Chicago, Ill., p. 289.

The philosophy of pelvic and abdominal surgery—Joseph Price, Philadelphia, Pa., p. 297.

L'UNION MÉDICALE DU CANADA.

Microbes et maladies contagieuses—E. P. Benoit, p. 281.

DOMINION MEDICAL MONTHLY.

(3.) Metallic sutures in fracture of the patella, with an improved method of introducing the sutures—J. J. Cassidy, Toronto, p. 153.

Science in medicine—F. Oakley, p. 156.

MEDICAL NEWS (PHILADELPHIA), JUNE 29TH, 1895.

(4.) The physiological and therapeutical action of iron, with a discussion of its newer pharmaceutical compounds—H. A. McCallum, London, Ont., p. 727.

On the evacuation of the tympanum—Donald B. Fraser, London, Ont., pp. 455, 568, 721.

(5.) JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, JULY, 1895. Quarterly series. Vol. I. Part 3.

The hygiene of vision in schools—T. D. Reed, Montreal, p. 257.

Teaching of hygiene in the elementary schools—Saraphin Gauthier, Upton P. Q., p. 259.

Some points in the hygiene of the young in schools—J. Chalmers Cameron, Montreal, p. 268.

A few remarks on school hygiene—M. T. Brennan, Montreal, p. 278.

Ventilation of school-houses—J. E. Doré, Montreal, p. 285.

Myopia in its relations with scholastic hygiene—A. A. Foucher, Montreal, p. 290.

Hygiene in medical education—J. I. Desroches, Montreal, p. 296.

The present state of sanitation in Montreal—L. Laberge, Montreal, p. 301.

Drainage of Montreal—Alfred Brittain, Montreal, p. 319.

Modern difficulties in bacteriological diagnosis—J. G. Adami, Montreal, p. 324.

The evolutionary developments of domestic plumbing during the past thirty-five years—J. W. Hughes, Montreal, 331.

The condition of the children's teeth of the present day, and the effects of decayed teeth on the health of the children—J. C. Adams, Toronto, p. 339.

Quarantine appliances illustrated—F. Montizambert, Quebec, p. 345.

Infection by the bacillus pyocyaneus, a cause of infantile mortality—E. P. Williams and Kenneth Cameron, Montreal, p. 355.

(1.) Cases of marked displacement of the liver, in which the normal hepatic dulness is absent, and the liver found low down in the abdominal cavity are rare, and the number so far recorded is limited. The author has collected, from literature, the reports of seventy cases, which he presents in a tabulated form. He is of the opinion that they may be easily divided into two classes. First, the floating liver, the *wander leber* of the Germans, a condition almost always found in women with pendulous abdomen, usually after frequent child-bearing; and a second class, made up of both males and females, in whom the causes of displacement are varied. His clinical observations have been limited to three cases: One an old lady aged sixty-two years, mother of ten children, who suffered from dyspnœa and cyanosis on the slightest exertion. She had emphysema and dilated right heart. The abdomen was very pendulous; the liver somewhat enlarged and very much displaced. The upper border of relative dulness was not higher than the margin of the seventh rib in the nipple line and the lower margin could be distinctly felt two inches below the umbilicus. Whenever she attempted to get up and move about she complained of weight in abdomen and difficulty of breathing, and cyanosis rapidly followed. An abdominal bandage was fitted in such a way as to support the liver, with the most satisfactory result.

The second case was a man with enormously dilated stomach and displaced liver. At autopsy it was found that the abnormal condition was primarily due to a sub-phrenic abscess, which pressed the liver forwards and downwards, and at the same time caused it to turn on its axis.

The third case was a boy of seventeen, who gave a history of having fallen off a waggon, and that the front wheel passed over him. This occurred about four months before he came under observation. He presented, in physical examination, a considerable amount of fluid in the peritoneal cavity, and a large, hard tumour was discovered in the epigastric and left hypochondriac region. This was diagnosed as the liver on account of the notch and lower sharp margin, which could be distinctly made out; the absence of dulness in the normal liver area, and the smooth upper surface. He complained of considerable tenderness over the tumour and of severe pain which passed upwards and downwards along the spine.

(2.) Perhaps no previous criminal case has excited so great and intense interest in Canada as the Hyams case, recently brought to an unsatisfactory termination for the time being. The interest excited has been, if one may so speak, of various kinds. Life insurance men, elevator experts, and medical men have special reasons for giving the

case their attention, in addition to those general considerations which attract them as part of the community. The points that are of peculiar interest to the medical profession are dealt with. A young man is found dead at the foot of an elevator shaft, and examination apparently shows that the head alone has been injured. No special examination having been made at the time the body was found, two years pass before suspicions of foul play were strong enough to call for further investigation. The body is then exhumed and examined with as much minuteness as possible under the circumstances. The head alone is damaged, but the injuries to it are of such a character as to completely destroy its continuity. A series of fractures is found which involve not only the vault, but the base and face also. Even the lower jaw has suffered. There is published a complete technical description of the various lines of fracture, as also photographs of the skull.

The damages to the head may be put into three divisions: (1) Damage to the vault of the skull; (2) damage to the base of the skull; (3) damage to the face. It must be understood that the bones only will be referred to. The difficulty of treating of injuries to soft parts at such a length of time after infliction is great, and so much uncertainty as to their location and appearance has been proven to exist that we dismiss them altogether and look only to those injuries of which the record is before us.

1. *Damage to the vault of the skull.*—For purposes of description we speak of lines of fracture as *starting at* certain points and *running to* certain other points, not intending to assert that these are really the points of origin, etc., or that the order followed in description is that actually followed in production.

The vault of the skull is divided into two lateral portions by a line of fracture which, starting at the root of the nose and separating the frontal bone nearly evenly in the midline, then opens up the sagittal suture for about three inches, then jogs to the right side at right angles for about one inch, and finally runs backwards, outwards and downwards through the occiput, and terminates in the foramen magnum to the right of the midline. (Unless otherwise specified, all lines of fracture spoken of pass completely through the thickness of bones.) Another line of fracture, which is a very striking one, runs through the frontal bone from side to side, parallel to the supraorbital ridges, and crossing that already spoken of at right angles. It begins in the right temporal fossa and terminates in the coronary suture of the left side, an attempt, as it were, to divide the skull into an upper and lower half. The chief remaining fractures of the vault appear to

radiate from the parietal protuberance on the right side, and if certain of them be followed through their course, we make a third line of division of the skull as a whole into an anterior and posterior part This line runs from ear to ear over the top just behind the vertex, passing through the right parietal protuberance on its way. Behind and below this transverse line of fracture we find another line, which runs from the right parietal protuberance straight to the tip of the occipital bone, and then upwards and outwards, to terminate in the transverse line spoken of above. Thus we have broken out from the back of the head a fairly regular, lozenge-shaped piece of bone, composed of two triangles, base to base, in the sagittal suture, and taken entirely from the parietals.

2. *Damage to the base.*—The damage to the base was as widespread as to the vault. A feature that strikes one instantly is the fact that both occipital condyles are damaged, the left being broken completely out and the right fractured transversely across in the centre. On the left side a gap is seen in the base, running from behind forwards and representing the situation of the petrous portion of the left temporal bone. This is one of the most noteworthy fractures of all, the dense piece of bone being cut completely out, almost as by an instrument. The greater part of the temporal bone of the left side—minus the petrous portion spoken of—has been separated from the other bones by lines of fracture running through the squamous part parallel to the suture, with parietal by-lines running down into the base and lines running fore and aft in the base. The zygoma on this side has been disarticulated from the malar and remains attached to the temporal.

3. *Damage to the face.*—Both zygomatic arches are destroyed, the right by fracture and disarticulation, the left by disarticulation only. The malar bone of the right side is separated from the superior maxilla by fracture through the maxilla just below the suture between the two. The superior maxilla of the right side is badly comminuted, the nasal process being completely separated and the antrum destroyed. The superior maxillæ are separated in the midline in front, and the fracture runs back through the palate on the right side. The left superior maxilla is also damaged, but not to so great an extent as the right. The nose is completely disorganized, all the bones being separated and more or less comminuted.

The internal angular process of the frontal bone on the right side has been broken off. (Great stress was laid upon this by some medical witnesses, as showing that a front blow had been struck, it being held that this fracture could not have been otherwise produced, looking to the condition of the skull as a whole.)

One very curious injury is a green-stick fracture through the left ascending ramus of the lower jaw. The break is from without inward, just across the neck of the articular condyle. There is no other injury to the lower jaw.

The ground taken by the Crown was that more than one blow was necessary to cause all the injuries found. The defence held that one crushing blow might have produced them, and that if more had been inflicted, the record was destroyed by the crushing force.—*Editorial.*

(3.) The author gives the history of an interesting case of fracture of the patella, and points out the difficulty of introducing the wire sutures in the operation of suturing that bone. This he overcomes by means of a flexible aluminum probe of such a size as to easily pass through the holes made by the drill. At one end there is an eye through which the wire is passed.

(4.) This is the third part of the report of the annual meeting of the American Public Health Association which was held in Montreal last Summer. Most of the papers are by Montrealers and synopses of many of them have already appeared in this JOURNAL.

(5.) Discussing Binz's well known and extreme contention that the administration of free iron is practically of little use to the organism, save as a protector to haematogen (or it may be more correctly according to McCallum, to chromatin and the nucleins,) McCallum concludes that the contention is not borne out by experience and that some time stimulative alterative or protective action must be ascribed to the drug. Following upon this he criticises unfavourably a series of the iron preparations that have of late made their appearance—iron albuminate, peptonate of iron, dried ox blood, hæmoferrum and ferratin. He points out that, therapeutically, they have no greater value than oxide of iron. (He does not, however, enter into the discussion as to whether any of these preparations are more easily borne by the digestive system.) He is evidently inclined to look to preparations of nucleins from the animal body as affording the ideal iron-containing preparation of the future.

Kenneth Cameron.

Correspondence.

A LETTER FROM VIENNA.

To the Editors of The Montreal Medical Journal.

[CONCLUDED.]

It is generally agreed that the best instruction now afforded in the hospital is that in internal medicine and pathological anatomy. Many physicians come here, however, for general work as well as for courses in ophthalmology and in all the various specialties. The clinic of Professor Nothnagel is always crowded; the undergraduate and the practitioner of many years are seen together in attendance on his lectures, which during the winter semester open at 8.30 a.m. If you wished to know what characterized his teachings, no better answer could be given than is expressed in the term "clearness." Is it a cardiac murmur? He reproduces it from his own lips, giving tone and murmur its peculiar rhythm and quality. Is it a case requiring the qualities of respiration to be appreciated by his hearers, who indeed are not able to auscultate directly? He expresses this with remarkable accuracy, and as he thus makes clear such parts of a case the same faculty of presenting other features renders his instruction of highest value.

Professor Neusser, of the second Medical Clinic, is now in his first year as professor here, and his clinic is also very popular among the English physicians. It is in this clinic that our sister physicians receive instruction in internal medicine, as they are not admitted to the others.

It is said on pretty good authority that Vienna is not so advantageous for study as it was a few years ago, and at least two elements may be montioned as tending to this end. The privileges of attendants in the divisions of obstetrics have been denied in several directions; the same applies to gynæcology. Surgery has lost much in the death of Professor Billroth; but internal medicine under the direction of Professors Nothnagel, Neusser and Schrötter and Professors Weichselbaum and Kolisko, are quite up to the past high standard.

The physician who comes desiring courses in medical diagnosis is often compelled to wait many weeks before he is able to secure a place. Such courses are given by the assistants and are attended by

a limited number of men—never more than ten and generally limited to six men. A member, for example, may control a place for a year and perhaps only occupy it for a few months, having a substitute in his absence. These places are eagerly sought, and one needs to know some of the members in order to secure a place, as the instructors have nothing whatever to say in the matter of the composition of the class.

One cannot speak too highly of the facilities here for seeing pathological specimens and receiving most excellent demonstrations from Professor Kolisko.

The University lectures closed for Easter vacation on the 15th inst. The summer semester opens on the 22nd of April. In the meantime the assistants in the various clinics and private docents of University are giving courses

Several cases rare to us in America have come under our observation. Only to-day three were in one out-patient clinic.

Reference is made to tetany. Vienna is said to be the headquarters for this peculiar disease and March the most favourable time for its manifestation. Thyroid extract, which is having its trial in various, possibly toxic, conditions, has been recommended in some cases. Examples of tetany have been seen in pregnant women and those not pregnant, in middle-aged men, in shoemakers, in boy-apprentices to shoemakers, and in boys whose occupation did not seem to play any part.

The readers of this journal no doubt have been following the tests of the antitoxine treatment of diphtheria the world over. It may not be amiss to refer to it yet again in this letter and to furnish a few extracts of reports made by careful observers in Prague, Vienna, Leipzig and Heidelberg.

Perhaps the most enthusiastic advocate of the treatment is Professor Widerhofer, of St. Amis Kinderspital, Vienna, At the end of his report of one hundred cases, in the treatment of which only 24 per cent. proved fatal, he says: "What I have written I have seen, and what I have seen I believe, and so I fear no repeal or retraction." He lays special stress upon the early administration of the remedy, and claims for it most advantageous results in cases of unmixed infection. In 96 of his cases Lœffler's bacilli was demonstrated, while a considerable excess of streptococci over the Lœffler bacilli was observed in severe cases, five of which terminated in death. The ages of his patients were from one to fourteen years. Twenty-one per cent. of the whole number treated died under four years of age;

twelve cases died of laryngeal diphtheria, in all of which tracheotomy was performed.

Professor Monti, of the Polyklinik, has also given a report on the cases under his care up to January. He is also an advocate of the antitoxine treatment. As his statistics are not at hand the following points concerning the minor effects may be noted, as they were learned from him while observing some of his cases under treatment. He says:

1. Albuminuria invariably follows the injection of Heil-serum, but it is not a token of nephritis.

2. Erythematous rashes are common—a result of septic infection through the serum, but they are not dangerous.

3. Paralysis of the various eye muscles are observed. They are undoubtedly due to the serum, as

(*a.*) They are more common than in cases of diphtheria otherwise treated.

(*b.*) They appear on the third or fourth day of the disease.

(*c.*) When found so early the cases affected are only those under going the serum treatment.

With regard to the last point (3) some doubt is raised as to the fact, and as Professor Monti is the only one who has reported such cases of paralysis as far as observed, further evidence must be received to establish this action of the serum.

Professor Ganghofuer, of Prague, Franz Joseph Kinderspital, gave his report on the treatment of 110 cases before the Society of German Physicians of Bohemia in December. One-third of his cases had been treated with Aronson's serum and the remainder with Behring's. He remarks that no difference in the results was observable. A strong point is made in the effects seen in laryngeal cases. In his cases 44 were treated by intubation, 17 of which were in patients under two years of age, and the percentage of deaths is 23.3, contrasting most favourably with the reports of cases not receiving the antitoxine treatment in previous years, when from 50 to 75 per cent. expressed the mortality. In the reckoning of all his cases the percentage is low indeed, only 14 ending fatally of 110 treated, 12.7 per cent.

Speaking of cases of nephritis due to the heilserum he says: "I can therefore, neither on the ground of clinical observations nor on the finding in post-mortem examination, regard it as indicated that the serum treatment of diphtheria patients brings about a development of nephritis in the same."

Professor Soltmann, of Leipsic, while believing in the treatment and reporting favourably on his cases, raises the question as to the effects produced by the carbolic acid which is contained in the serum. He says, "Behring's heilserum is a carbol-heilserum."

Professor O. Vierordt, Heidelberg, has lately added his experience to the large number already published. His report is based on observations of 75 cases, 63 of which were undoubtedly genuine Lœffler bacilli cases. In order that fair showing may be given, or rather that reasonable conclusions as to the working of the serum may be drawn, he excludes from this number (63) 8 which are hopeless from coming under the treatment too late or from pulmonary complications. Thus the number is reduced to 55 cases of diphtheria due to Lœffler bacilli; the mortality is 14.6 per cent. Fifteen of his cases came under tracheotomy, and these show a mortality of 46 per cent. He remarks upon the favourable condition of the heart, the mildness of albuminuria, the absence of cases of paralysis, and the insignificance of secondary effects referable to the serum, as skin eruptions, joint pains, etc.

One view of this question may be presented. It gives us an idea, as far as statistics serve, of the results of the antitoxine. The figures are taken from the *Wiener Klinische Woehenschrift.* Combining many reports we find that up to a certain time, January, 1895, 3,888 patients had received the treatment; 716 died, showing a mortality of 18 per cent.; 29 observers report a mortality under 20 per cent., 10 between 20 and 30 per cent., and 3 between 30 and 40 per cent. Then taking the reports from different countries they show as follows: Mortality, Austria 14 per cent., Hungary 14 per cent., Deutschland 14 per cent', Italy 14 per cent., France 13 per cent., Holland 7 per cent., England 23 per cent., Berlin 17 per cent., Vienna 22 per cent.

We are anxious to see some of the work in the German institutions before returning home, so we are planning visits to Munich, Stuttgart, Erlangen, Heidelberg and Strasburg. And after a few weeks in London we hope to return to Canada, though somewhat sorry to leave the very instructive and withal attractive institutions of learning which are so numerous in the Old World.

W. F. Hamilton.

MEMBRANOUS CROUP SUCCESSFULLY TREATED WITH ANTITOXINE SERUM.

To the Editors of The Montreal Medical Journal.

Escanaba, Mich., June 24, 1895,

Sir,—With your kind permission, I desire to report a case of membranous croup treated successfully with anti-toxin serum. At 8.30 a.m. June 8th I was called to see a little girl, five years of age, ill with membranous croup. For some days previously she had been hoarse, and had a slight cough, but continued to attend school until the 6th inst., when she complained of shortness of breath. The dys nœa continued to grow worse until I saw her. At that time there was considerable cyanosis, with frequent attacks of choking; the respirations were 36 per minute, and labored; the child only able to speak in a whisper; the pulse 120; the temperature 103° F. The tonsils were covered with a white membrane, which could not be separated without giving rise to slight hæmorrhage. There was no noticeable swelling of the glands. The parents stated that the child for the past 48 hours had had no sleep, except for a few minutes at a time. Although there were no other cases of diphtheria in the city, from the characteristic croupy symptoms, and the membrane in the throat, I had the house placarded as diphtheria, and informed the parents that I would return at 11 a.m., and use the diphtheria antitoxin, if I was successful in obtaining it. Fortunately I was able to procure an ounce of the precious fluid, costing six dollars. With an aseptic hypodermic syringe I injected three drachms deeply into the right gluteal region, covering the puncture wound with absorbent cotton and collodion, and over all an adhesive plaster.

Returning at 10 p.m., I was told the child fell into a quiet sleep about forty-five minutes after I left. She slept two hours, and her breathing appeared much relieved; but about 6 p.m. the breathing again commenced to be laboured. I found the respirations 28; pulse 120; temperature 101° F.; there was slight decrease in extent of the membrane, and she would occasionally cough up small pieces of it. I ordered 1-6 grain of calomel every three hours and an inhalation of steam.

The next morning at 9.30 o,clock I found her about the same, except that the membrane on the tonsils was gone, showing a congested appearance of the mucous membrane. I again injected two drachms of the serum. On my return at 6 p.m., I was told that she had dropped asleep half an hour after I left, waking up in two hours, and asking for something to eat. The pulse was 120, respiration 24, temperature 98.6° F. The breathing was now very easy and there was

very littie choking. On the 10th of June I was called away, but my friend Dr. Rodger saw her for me, night and morning, and reported that beyond a slight barking cough, with which she brought up pieces of membrane, she seemed to be in a very good condition.

I saw her for the last time on the 11th, and found no evidences of her trouble remaining. The gluteal regions were even without soreness. I attribute this recovery to the effect of the antitoxin serum, for, during the past six months, I have had two other cases with similar symptoms, and both died, having been treated by the ordinary text-book treatment.

C. H. Long, M. D.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Discussion on Erysipelas.
Scurvy—Dr. H. A. Lafleur.
Excision of the ankle—Dr. Jas. Bell.
Hernial Sac reduced *en bloc*—Dr. Jas. Bell.
Aneurism of the Thoracic Aorta—Dr. J. G. Adami.
Aneurism of the Renal Artery—Dr. E. P. Williams.
Appendicitis—Dr. E. P. Williams.
Infection in the Dentist's Chair - Dr. G. E. Armstrong.
Double Coronary Arteries—Dr. E. P. Williams.
Experimental Cerebral Localization—Dr. T. W. Mills.
Cystic Ovaries—Dr. T. Johnson-Alloway.

Discussion on Erysipelas.

Dr. F. W. Campbell said that an old friend of his always got an attack of erysipelas when he exposed himself to the north wind. He mentioned a few things in the way of local treatment which had not been referred to by Dr. Roddick, namely, lead, arnica and opium ; and a form used by the late Dr. Crawford of this city, the application of tincture of iodine, and subsequent dusting of the part with flour to protect it from the atmosphere. He thought we had the power of limiting the disease by the application of the solid stick of nitrate of silver, although it occasionally failed. A local application of the liquid extract of ergot contracted the vessels over the part ; an illustration of which had occurred to him during the last ten days. A child burned its big toe, it was neglected and erysipelas set in, spreading up as far as the knee, it passed the knee, got as far as the hip and was extending up the back. Ergot was applied at night with direction to repeat in the morning, but in the morning it was not required—the skin was shrivelled and dry. Dr. Roddick had approved of calomel, and gave 5 to 10 grains. He (Dr. Campbell) often prescribed 10 grains of calomel to a child 10 months old, and the result was only two or three medium evacuations.

Dr. Bell said the more one considers the subject, the more one is confirmed in the opinion that the disease erysipelas is dealt with in a most empirical manner. I am glad to hear Dr. Adami say that he believes and that many bacteriologists believe that erysipelas is only one of the manifestations of the presence in an active condition of the streptococcus. I think it is quite right to look upon cutaneous

erysipelas as a specific condition. Such cases are comparatively easy to deal with. There can be no question as to the advisability of isolating such cases; but when we come to deal with cases not quite so typical, when we come to deal with cases where the lymphatics beneath the skin are affected, we cannot fail to ask ourselves the question, what is the difference between this disease erysipelas and the lymphangitis which attacks the dissecting room student, the surgeon, or the butcher? And why should we insist upon isolating one form of streptococcus disease, that called erysipelas, and not isolate other inflammatory conditions which we attribute to the same coccus? The series of cases mentioned by Dr. Adami as having occurred in the Royal Victoria Hospital under my observation have already been reported by me to this society. Another series of cases reported to the Montreal branch of the Britsh Medical Association about a year ago was as follows: A woman recently confined by a midwife in a district where scarlatina prevailed died of purulent peritonitis, and a house-surgeon and a student became infected from her in the performance of their separate duties in the ward and post-mortem rooms, the one contracting an erysipelas, the other a subcutaneous lymphangitis. Then, again, there is a class of cases which I have several times observed: In cases of appendicitis ending in abscess, which makes its exit from the peritoneal cavity either by furrowing along the psoas muscle or in the tissues of the abdominal wall, it frequently happens that when such cases are operated upon and the abscess drained that during convalescence the patient is attacked by erysipelas which is again followed by pyæmia. Dr. Bell then mentioned the particulars of a case of this kind which when the abscess was opened and drained was followed in about three weeks by erysipelas about the wound, afterwards involving the face and finally ending in pyæmia. Another old patient admitted to hospital on February 1st, 1895, was operated upon February 11th and did very well after the operation. On the 28th of March pneumonia set in, followed on April 7th by erysipelas of the face. Later on he developed isolated patches of erysipelas over the abdomen. On the 20th of April (after the chest had cleared up and he seemed quite recovered from his pneumonia) he was isolated, but an empyæma developed and he died on April 25th. Now, when erysipelas is clinically interchangeable with these other conditions, I do not see how we can look upon it as a specific disease. I think the latter view is based upon obervations of too narrow a scope, that it is a premature conclusion drawn from insufficient data, and that the theory expressed by Dr. Adami, that erysipelas is only one of the evidences of the pathogenic qualities of

the streptococcus, will be found to be the more correct one. Compare this subject with our knowledge, past and present, of tuberculosis and tuberculous conditions. For instance, "white swelling of the knee" and scrofula, conditions which a few years ago it would have been ridiculous to regard as similar to pulmonary phthisis, are all to-day known to be manifestations of the same disease—tuberculosis. So I think in time we will come to regard all these diseases above mentioned (erysipelas, pyæmia, etc.) with others, such as œdema glottidis, angina Ludovici, and many of the so-called surgical or septic fevers as distinct manifestations of the effects of some micrococcus, or as the effects of this special micrococcus (streptococcus) alone or in connection with the other micrococci (the staphylococci, etc.) I will just mention here the clinical history of three cases of erysipelas which we had recently in the Royal Victoria Hospital. First, on the 7th of April the old man already referred to developed erysipelas. On April 4th there was admitted a man from the country who had a week or ten days previously injured his hand with the development of cellulo-cutaneous erysipelas of the hand. Within a day or two he developed metastatic abscesses, or a typical pyæmia with abscesses in the joints of the left hand. About the same time Dr. Buller did a plastic operation upon the nose of a patient in the same ward. Dr. Buller's patient was admitted on the 1st of February, operated upon on the 10th of April, and the onset of erysipelas on the 11th of April. Here this case of erysipelas was admitted on the 4th, the old man developed erysipelas on the 7th and Dr. Buller's patient on the 11th; now, just exactly which of these patients was responsible for introducing the disease is a problem. I am inclined to think from considering these old appendix cases, and the remarks made by Dr. Adami, that the old appendix case was the cause of inoculating Dr. Buller's patient. Then again in speaking of the interchangeability of this disease I forgot to mention the puerperal period. Dr. Baker, of the veterinary school, on Sunday night in delivering a cow which had been in labour for more than 24 hours and roughly handled by stablemen, noticed the animal's vagina in a swollen condition. In using a hook instrument for delivery he scratched the back of his hand; I saw it the next day. On Thursday night I incised his hand freely, not that there was then very great indication for it except to relieve pain. That same night, without any pressure being applied to the finger, it became black, gangrene set in and extended rapidly up the finger. The gangrene, however, was arrested, but the finger had to be amputated. Here, then, is a case of apparently rapid infection from the mucous membrane of the cow's vagina prior to delivery,

and therefore not a condition of puerperal fever, and was only brought about by bad management or unclean operators. Now everyone admits that the ordinary cutaneous and cellulo-cutaneous erysipelas is contagious, but I am inclined to think that the contagiousness of erysipelas is not so great as is generally believed. On the other hand, the deeper lymphangitis and many other forms of the so-called septic fevers, perhaps all of them, in which danger of contagiousness is not recognized at all, may, under certain conditions, be contagious, and possibly the difference between the contagiousness of erysipelas and of these other conditions is only a difference in degree and yet not nearly so great as is generally thought. As to treatment, I cannot say that I have any definite views as to what is the proper medicinal treatment at all. Of course the local surgical treatment and ordinary antiseptic treatment, so far as it can be carried out, is safe and rational.

Dr. ENGLAND wished to express his appreciation of the theory upheld by Dr. Adami. Everyone who had had a general practice, and thus an opportunity of seeing general septic conditions, including among them erysipelas, would see the *rationale* of the theory he presented. He could call to mind at least three or four similar cases to those narrated by Dr. Bell—namely, a septic wound to be followed by a pneumonia, then by facial erysipelas, and finally ending in pyæmia and death. All these conditions arising from a simple abrasion of the skin. So also, between puerperal fever and erysipelas a relationship exists, so much so that careful physicians gave up accouchement work when attending erysipelas. The streptococcus of erysipelas introduced through abrasions in the vagina into the puerperal woman will set up a most severe and generally fatal general septic infection —a progressive sepsis without erysipelas about the genitals showing itself. From his clinical experience, this definition given to the disease by Dr. Adami, not limiting the inflammatory process to an inflammation of the skin and mucous membranes, but considering it in a wider sense, seemed more rational. He further mentioned that he had seen two cases of facial, erysipelas run an ordinary course of moderate severity, although occurring during the first week after delivery without any special symptoms bearing upon the generative tract.

Dr. BULLER, speaking in regard to the case referred to by Dr. Bell in which erysipelas developed after a plastic operation said that the first operation in this case had been an extensive one and was followed by no bad results; the second operation had not been so extensive, and although performed with all the usual anti-

septic precautions, erysipelas followed. He looked upon the nasal organ as especially liable to take on erysipelas action. This man, referred to, must have inspired the erysipelas poison ; there was no sign of erysipelas in the wound itself, but the skin of the nose, quite apart from the wound, was the first place in which the disease made its appearance. It was a well known fact that people who had any slight solution of continuity in the nasal mucous membrane were very liable to take erysipelas. Another point in this connection was that one occasionally met with erysipelas of the face in which the disease extended to the orbit, after the manner of deep-seated or phlegmonous erysipelas and caused pressure upon the eyeball and optic nerve, commonly ending in blindness. In this case, he had excavated considerably into the orbit, and exposed the orbital tissues pretty freely ; but although the erysipelas spread over the region of the wound it did not enter the orbit. He thought this was an indication that there might possibly be some difference between the germ action which was necessary to set up a deep erysipelas and the germ action which sets up the cutaneous variety. Although this man seemed to have contracted his erysipelas from the deep variety of the disease, the kind he had was cutaneous, and he was not affected by the deep kind. Perhaps he had no special susceptibility for the deep erysipelatous action and therefore it was impossible for him to contract it. In reference to erysipelas in the different seasons of the year, Dr. Buller met with most of his cases in spring and autumn. Whatever may be the cause, it must be very widespread ; erysipelas occurred in houses where the individuals were perfectly healthy, one member catching it and the others entirely escaping. Sometime ago he saw a child who had erysipelas following a slight ulceration of the margin of the lid ; it came into contact with no other case of the affection, and therefore must have received the poison through the atmosphere. Whatever the poison was it must be very widespread, else the sporadic cases could not be accounted for.

The PRESIDENT referring to the remarks of Dr. Roddick as to hot moist applications being advisable, and Dr. F. W. Campbell's recommendation of dry application in the form of flour, said he remembered some years ago, in 1854, in Saint George's Hospital, a large number of cases of erysipelas occurred, in fact the disease followed almost every operation, until at length the authorities were forced to close up the infected wards. It had been the custom to have these wards washed out every morning. They now, after closing them, caused the walls and floors to be freshly painted and dry rubbed. They were then opened and no more cases of erysipelas occurred. It was im-

possible to say positively that the moisture, involved by the daily washing, had the effect of keeping up the affection; but he thought it likely that it had a tendency that way, as moisture was one of the conditions of growth of bacilli, and it was possible that it should also have some influence in the treatment. The manner in which the disease extends, leaving the central part and spreading around, reminds one of what was seen in fields in the shape of the "fairy ring"—always growing larger and larger, but never growing on the same spot a second time. It may be possible that this streptococcus, like the fungus of the fairy ring, after growing a certain while produces something which prevented its developing any further in that particular spot.

Dr. ADAMI—Dr. Mills wished to know if other germs could be excluded as producers of erysipelas. We can occasionally get slight reddening in connection with germs that are not chain cocci. For instance, in cases of ordinary abscess, one gets a certain zone of reddening, and apparently cutaneous and lymphatic disturbance in the region of the abscess. One, therefore, can get a certain blush in the neighborhood of an abscess caused by the pyococcus. This is about all that can be said on the matter.

With regard to Dr. Buller's case of want of extension to the parts deep in the orbit, I will point out that by cutting across the lymphatics he may have interrupted the flow of lymphanoids. The cocci are themselves immovable, and are either conveyed by direct growth in stagnant fluid or along currents, not to any extent against those currents. Possibly extension would in any case be less likely to occur deeply. I only throw this out as a suggestion.

I cannot agree with Dr. Roddick that the streptococcus of erysipelas is specific. I will admit that it is peculiar; but not that it is specific. I think we are now on the eve of regarding the series of suppurative diseases due to the chain coccus in the same light as we do now regard the whole group of diseases due to tuberculosis. Some years ago one would be regarded as foolhardy who stated that white swelling of the knee, or lupus, were not specific and distinct diseases.

What has been said with reference to the iron treatment of erysipelas reminds me vividly of an incident while I was still "walking the hospital" at Manchester. I was making the rounds with one of the surgeons and he came to a stand before a convalescent patient. "Gentlemen," said he, "let me once more impress upon you that tincture of the perchloride of iron is a specific for erysipelas. You see here my fortieth case in succession treated thus without a single death." One

of the physicians who had been called in to examine a patient for admission to the medical side happening to hear the statement came across the ward at this, and beckoning the surgeon to one side, said to him sufficiently loud for me to hear, "My dear W——, what an odd coincidence! I had begun to doubt the efficiency of iron and have been treating erysipelas with simple rest in bed and aperients, I've just had forty cases also on this treatment—without a death!"

The treatment mentioned by Dr. Campbell of ringing or delimiting the advancing margin by the application of lunar caustic is undoubtedly sometimes effective, and it may be worth while here to give Sims Woodhead's explanation of the *rationale* of the process As I said before there are in the reddened erysipelatous area numerous leucocytes together with destruction of the cocci; in the zone outside this one finds cocci without any excess of leucocytes. The application of the caustic in this outer zone sets up a simple inflammation with migration of leucocytes and presumable destruction of the cocci. I would suggest that, bearing in mind the fact that chain cocci may be found more than an inch beyond the reddened margin, the line of application should be painted at least one inch and a half outside that margin, thus enclosing the living active cocci between two barriers of typical inflammation.

What I have said previously concerning saprophytic existence of the streptococci on the skin and mucous membranes is not peculiar to this one organism. Very numerous observers have similarly discovered the pneumococcus, the diphtheria bacillus, the bacillus pyocyaneus, and yet other organisms capable of producing well marked lesions within the tissues of the body upon the skin and mucosæ of those that are perfectly healthy. In fact the diplococcus of pneumonia has been found by Sternberg as an inhabitant of his sputum for months at a time, and this is true for the sputum of 15 per cent. more of healthy individuals.

Dr. HINGSTON, in reply, said the tendency of the best medical minds to-day is to synthetize rather than to analyze; to group together diseases having features of affinity, rather than to separate and create new diseases which have certain lineaments or single parts which seem to be different from the general outline. I am inclined to think there are many in this room who will live to see diseases grouped together on a large scale—very large groups brought under one head, like those groupings of Erasmus Wilson in skin diseases, where he reduced the whole of them with all their chief distinctions to three or four heads, for therapeutic purposes. And thus it may be that erysipelas may come to be considered as simply a form of inflamma-

tory action modified by conditions proper to the patient, either in his constitution or in his surroundings. I have had some personal experience of erysipelas in my own person; it has, in fact, been my *bête noir*, having had any number of attacks. The worst one was from a little scratch of a razor. As soon as I was dressed I started off on a long journey in winter time. The weather was extremely cold. I travelled incessently, changing horses three times. As a cold wind was blowing from the north I must say if erysipelas arises from a living bacterial principle outside of the body it must have taken up its abode on this occasion in the otherwise pure north wind and have pounced down upon the razor scratch like a hawk upon its quarry, as I had symptoms of the disease before the end of the journey. If the microbe crawled up from his habitat in the mouth or nostril then must its power of resisting existing cold have been very great. On another occasion, on removing my eye-glass, I made a little scratch, which was followed by an attack of the disease. The beak of a bird on another occasion brought on this trouble. With many attacks of this affection, arising in a variety of ways, I have had some little experience as to the treatment and as to the comfort afforded by different local applications. I have tried many things which either my friends or my own experience could suggest. Unctuous applications afforded no relief; the old-fashioned flour gave most ease; but the suspicion crossed my mind that it was not the flour, but the firm yet gentle mechanical pressure with which it was applied, that gave relief. The application of a little soft rag without the flour gave me the same amount of relief and for an equal length of time.

As to the question of the contagiousness of erysipelas, some seem to think the matter settled. Whether so or not, the most prudent thing is to act as if it were highly contagious, and not to put patients, after an operation in the neighbourhood of those who have or have had erysipelas. In reference to treatment, two gentlemen spoke of the value of certain purgatives. I have a very strong feeling which I cannot emphasize too forcibly, that purgatives should not be given in erysipelas. A dose of castor oil may be given at the beginning as a laxative, but not afterwards. We know that in certain fevers the exhibition of purgatives is objectionable. I have known again and again erysipelas to return when purgatives have been taken after the disease had seemingly subsided. The food should be nutritious and abundant, but as to liquid meats, such as broth and beef tea, I deny that they are foods at all. That, perhaps, may appear heretical to some, but on this question I am in harmony with an expression of

opinion given before the British Medical Association some fifteen or more years ago, when the chairman of a committee appointed the previous year to enquire into the value of liquid meats gave, it as the unanimous conclusion of the committee, after some crucial experiments, that liquid meats—or meats in suspension—not solution—are valueless as life or heat sustaining. On this question I share the opinion of the late Dr. Parker, of New York, when he said meat broths and meat teas and meat essences when drank are as useful to patients as their own urine. In conclusion, Dr. Hingston referred to Dr. Buller's proposition to plug the nares for the purposes of preventing the entrance of the streptococcus through that channel, and said he thought it would not be effective, as the connection existing between the buccal and nasal passages behind, would neutralize the desired effect when the patient was compelled to resort to mouth breathing,

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Stated Meeting, May 17th, 1895.

G. P. Girdwood, M.D., President, in the Chair.

Scurvy

Dr. H. A. Lafleur exhibited a man suffering from this disease.

The President said that he had met with a number of cases of scurvy during the construction of the Canadian Pacific Railway, where the diet had been mainly "hard tack" and salt meat. Better diet and salts of potash had soon effected a cure in these cases.

Dr. H. A. Lafleur drew attention to the fact that the eruption in this case was limited to the hair follicles, a point which Fagge held to be diagnostic of the disease.

Excision of the Ankle.

Dr. Bell showed a man 29 years of age, who was first admitted to the General Hospital in 1892. Four days prior to his admission a hot iron penetrated the inner side of his heel; he bled a good deal and it was thought that the posterior tibial artery was injured. When admitted he was suffering agonizing pains, which continued for some days afterwards. In a few days it became evident that it was a septic arthritis, involving principally the astragalo-tibial joint, and an abscess formed under the external malleolus. Under these circumstances I first tried opening and draining the cavity, but without relief, and it became necessary to excise the joint in order to secure proper drainage. The astragalus, the scaphoid and the ends of the tibia and fibula were removed. These were the only bones appearing

to be involved in the septic process. Even then he had serious trouble and was a long time getting well; the suppuration was very active and the case gave me a great deal of anxiety. He was finally, a couple of months later, discharged from the hospital, and I have not seen him since till to night. The foot looks very well, but he says it pains him a great deal after walking any length of time.

The other patient is a little girl ten years of age. On the 1st of January last she scratched her heel. On the 10th of February this was chafed by wearing a tight boot in walking, which set up an inflammatory condition. On the 18th of February she was admitted to the hospital, and the next day free incisions were made over the foot and leg. A condition of deep cellulitis was present about the joint. I did not discover at that time that the joint was involved, but it soon afterwards became evident that the ankle joint was eroded, and on the 9th of March she was accordingly prepared for operation. It was found that the disease was much more extensive than originally thought: it was necessary to dissect out the astragalus, scaphoid, most of the cuneforms, and to remove the ends of the tibia and fibula above the the articular surface. This patient also got on rather badly afterwards, it being likewise an acute suppurative condition, but not nearly so bad as the first patient, for the reason that so much bone having been dissected away there was a much freer drainage. She is now about ready to be discharged from the hospital. The pathological examination at this time showed the presence of staphylococcus pyogenes albus.

This demonstrates that the ankle-joint must be an exceedingly bad one to make it necessary to amputate the foot, as long as the disease does not extend below the astragalus or scaphoid.

The patients having then left the room, Dr. Bell proceeded with his remarks as follows:

It seems to me that the condition of things in this man is due to his inability to fully flex the foot, and that it might be easily remedied by taking away a little more of the ends of the tibia and fibula thereby allowing of freer movement of the foot. The specimen before you is the case which induced me to bring these cases before you to-night. This patient came to me in 1890 with an acute tubercular condition of the ankle-joint; he came to me with the intention of having his foot amputated, his doctor having advised such a step. I, however, advised him to have excision done instead. In July of that year I excised the astragalus, scaphoid and the articular surfaces of the tibia and fibula, with some portions of the horizontal surface of the os calcis. He got on remarkably well for three years, and he

used to write me that he could skate and waltz as well as anyone. In October, 1893, he returned, complaining of pain, and again determined to have his foot amputated. I persuaded him again, as a compromise, to allow me again to open at the original incision, and if I thought it possible to save the foot I might do so, if not I was to amputate. On reopening the original incision I found no unhealthy tissue, except those old conditions generally found in the hip-joint after spontaneous recovery. That was removed and he made a rapid and uneventful recovery. He returned again about three months ago, and this time was determined to have it amputated. He said he could not walk more than a mile before the foot gave him pain, and he was very much enamoured with the idea of having a cork foot. After considering the circumstances I refused to amputate, advised him to have it put up in plaster and wait a year before doing anything further. Three weeks ago he again returned with all sorts of arguments for the removal of the foot. He was determined to have the foot off. As I could find no evidence of disease, I was very much opposed to amputation, but I felt it was impossible for me to properly estimate his sufferings, and as he insisted that the foot was useless to him, and I could not negative his statements, I referred him to Dr. Roddick for consultation, and on thinking it over we decided to amputate the foot. Now it is perfectly evident after the removal of the foot that there is no disease whatever—none, at any rate, that is apparent to the naked eye. Now, I believe this man's suffering was exactly on a par with the sufferings of a man with flat foot. He was an active fellow and would not be satisfied with anything else than the full use of his limb. The pain was due to the weight of his body being borne on the outer side of his foot and the loss of elasticity in the instep due to the excision. This has led me to think of one or two other cases where excision has not given satisfactory results. A case shown here to-night, and a case in which the foot was afterwards amputated by Dr. Shepherd. Another case in which a girl did remarkably well and was very proud of her useful foot, until about six months afterwards she developed acute tuberculosis and died of meningitis. It is the after results in these three cases which has led me to bring up this subject to-night. I may say, however, that although the results in these cases have been somewhat unsatisfactory, it does not in the least change my opinions in favour of an excision of the joint as an alternative to amputation. Now, this little girl, and several other cases I have had, have been the result of acute suppurative disease, not due to tuberculosis, and these give the most satisfactory results. Of course most of these cases requiring excision are cases of

tuberculosis, and in these of course we have to deal not only with the actual condition in the limb, but the general systemic disease, and the question is whether it would not be better to amputate for the purpose of more effectually eradicating the disease and preventing the development of tuberculosis elsewhere, In any case in excision of the ankle-joint it is most important, as is well shown by the cases exhibited to-night, to secure a proper position of the foot and a sufficient amount of mobility at the ankle.

Dr. ARMSTRONG spoke as follows: The question of excision is of course very hard to discuss without some specific case before us; it must be determined by the amount of destruction in the joint. It is better, when possible, by multiple incisions, thorough opening up of the parts with irrigation, gauze packing and drainage, to tide over until the septic condition has disappeared, when the excision may be completed with better prospect of getting a rapid and satisfactory result. It is always difficult to obtain a good result when a septic condition is present. Of course you must get perfect drainage or the operation will not be successful. As to the question of excision in tubercular cases, if the disease is at all localized I consider this operation preferable to amputation. Of course if the whole tarsus is involved it might be doubtful, but given a fairly well nourished patient with good recuperative power and not too extensive disease, I certainly should prefer excision to amputation. One point with regard to these operations is that although we sometimes do excisions in the small joints and allow them to heal with blood-clot, in the ankle joint this seldom succeeds, and it is better to pack and allow it to close up. The space in the ankle-joint is too large, whereas in the small joint you can probably get an aseptic clot.

Dr. BELL said the excision here was simply done for drainage and only as a temporary measure, but the man got well, went away and would not consent to any further interference.

Hernial Sac Reduced "En Bloc."

Dr. BELL presented the specimen and related the following history: The patient, a man 65 years of age, had had inguinal hernia for some years; one week ago last Sunday in trying to reduce his hernia the lump disappeared and did not come out again after that. He was immediately taken with pain and vomiting. This condition continued all Sunday and Monday and on Tuesday he arrived at the hospital in a moribund condition. There was stercoral vomiting and great lividity and I decided to operate immediately. I found about two and a half inches of the ileum caught in this ring. There was no tumour at all appreciable and I consequently cut down in the middle

line. It was easily withdrawn from this ring, and although incarcerated it was not strangulated. I found the bowel beyond the hernial inclusion in a very much contracted condition ; also the bowel a few inches further up showed signs of recent adhesions, probably the result of some recent incarceration.

Another case came under my observation in May, 1890. A man 59 years of age who had double hernia for sixteen years returned it in this way. He had noticed, however, that he had frequently returned it and it gave him great pain, vomiting, etc., and he used to walk about until it came down again, when he got relief and he could afterwards return it in the regular way. On this occasion, five days before he came to the hospital, he returned it and these bad symptoms followed. All his efforts to get it to come down again were in vain. Upon opening the abdomen I found practically the same condition as here described. In the course of convalescence he had a fæcal fistula, but he ultimately got well. These are the only two cases of this kind that I have seen. When one sees in operations for hernia that there is a large mass of omentum adherent to the sac and yet does not draw up the whole sac, it does seem strange that an ordinary small hernia can be reduced in this way. Recent works on hernia are all taken up with the operative treatment of the subject. In Lawrence's work, however, he mentions these cases and arrives at the conclusion that they must be extremely rare. He also arrives at the conclusion that this condition can only occur in a particularly free and open canal, and in which there is a fibrous contraction of the ring and in which the parts are lax and allow of free movement of the sac upon the more resisting tissues. That is the condition in these two patients, both old men, slight and spare, and certainly a dissection of this case showed it was very freely movable indeed in the cellular tissue.

Dr. Armstrong thought this was a case of pro-peritoneal hernia, sometimes due to wearing a badly fitting truss or an undescended hernia, the truss gradually working the hernia back from the transversalis fascia, and thus it got caught.

Another important point was to interfere almost as soon as symptoms appeared, although the tumour might be entirely gone. When the symptoms existed it showed that there must be some obstruction remaining unrelieved which demanded further operation. Quite a series of cases enumerating symptoms which persisted after operation, even though no tumour existed, and required further interference, has been reported. An exploratory abdominal incision was generally demanded and the treatment of whatever condition found.

Aneurism of the Lower End of the Thoracic Aorta.

Dr. J. G. ADAMI exhibited the specimen, a report of which will be found on page 93.

Aneurism of the Renal Artery and Partial Double Ureter.

Dr. E. P. WILLIAMS showed the right kidney of an old man who died of pneumonia. He had used alcohol in excess. Two ureters left the kidney, which had no true pelvis, and united a short distance above the bladder. The superior branch of the renal artery exhibited a small, round, sacculated aneurism, with partly calcified walls, which was about fifteen millimetres in diameter. There are no specimens of these aneurisms in the McGill museum, and no notes of any similar cases at the hospital. The kidney showed slight nephritis and the other arteries were athromatous.

Appendicitis.

Dr. E. P. WILLIAMS related the following case of appendicitis which is interesting on account of its early history. A little girl, eleven years old, fell and struck her right side above the crest of the ilium. This region was painful and the child looked unwell, but made no complaints for a week, when she was knocked down at school and again hurt her side. In trying to walk home she fainted by the way, vomited, and arrived home with a violent headache, feeling unwell for the rest of the day. For three or four days she limped about and finally I was asked to see her on account of the lameness. I found the muscles above the crest of the right ilium somewhat tense and slightly tender on pressure—nothing further. A day or two later she complained of pain in the right knee. It was very sensitive, and when moved gave great pain—no redness nor swelling. Temperature 104°. The pain in the side continued. Salicylates were given. and on the following day the temperature became normal, the knee was not painful, but the muscles over the ilium were more tense. On the following day this firmness of the muscles was distinctly limited anteriorly by a line drawn from the tip of the eleventh rib to the centre of Poupart's ligament. The fingers could apparently pass over and grasp this firm edge, while posteriorily the feeling of resistance extended to the lumbar spines. Very slight dulness was distinguished.

The following evening the temperature rose to 103½, and the pulse to about 120, and a sudden attack of epistaxis occurred, followed by vomiting of the blood which had been swallowed.

Dulness was marked and a tumour, limited anteriorly as before, was found to extend towards the iliac fossa. Tenderness was most acute at McBurney's point. On consultation with Drs. Shepherd and

Kenneth Cameron an abscess, probably connected with the appendix, was diagnosed.

The child was taken to the General Hospital and Dr. Shepherd operated. A large abscess cavity was found between the cæcum and the abdominal wall, above the anterior superior spine of the ilium. The appendix had ruptured near the gut, and evidences of old inflammatory adhesions were present. The streptococcus pyogenes and b. coli commune were isolated from among other bacteria in the contents of the abscess. Recovery quickly followed. It was found out afterwards that the child had formerly had numerous attacks of colic.

Stated Meeting, May 31st, 1895.

DR. G. P. GIRDWOOD, PRESIDENT, IN THE CHAIR.

Infection in the Dentist's Chair.

DR. G. E. ARMSTRONG read a paper on this subject, which appeared in the July number.

The PRESIDENT, as an instance of the antiseptic properties of saliva, mentioned the well-known habits of dogs licking their wounds and continuing so to do until the latter were healed. If this practice was not a proof of the antiseptic properties of saliva, he certainly thought it was proof against its being a very infective fluid. He enquired whether in the first case, in which the glands about the neck were not enlarged, the alimentary glands showed any enlargement ; and if they did not, how the connection between the poison in the mouth and that of the kidneys could be explained.

DR. MILLS considered it remarkable that more cases of infection of the kind described in the paper had not been recorded. He was surprised considering the rapidity with which most of the digestive juices fermented, to hear that saliva was a germicide.

DR. T. D. REED questioned whether dental neglect was the cause of the trouble in the cases reported. One patient originally had some throat trouble that might also have been a cause.

Dr. ARMSTRONG, in answer to the President, said of course the case might be viewed from two stand-points : from the clinical, infection was undoubtedly through the mouth ; she had an extremely fetid foul mouth and there was no other evidence of trouble ; that is the lungs, heart and urine were normal. There was no evidence of anything else to cause this high temperature and septic condition, except this stomatitis. She had not been taking medicine of any kind ; and it seemed quite possible that the streptococci found entrance through the mouth. Of course he could not say that the forceps were the

cause ; but he thought that possibly, if the forceps had been sterilized, the field of operation cleansed, and a mouth wash used for some days afterwards, the result might have been different. At any rate his object was to show that there was greater necessity for the application of antiseptic principles in doing operative work about the mouth than upon the skin, because in the former place bacteria had a better field to thrive in. With regard to whether the infection came from the intestinal canal, the view that ulcers were in the digestive tube and these inoculated the traumatism of the gums, might be held, but against it was the evidence that streptococci were found in the spleen and kidneys as well as in the mouth, whereas, if the infection originated from the intestinal ulcers the bacillus coli germs would certainly be found.

Double Coronary Arteries.

Dr. E. P. Williams showed a heart in which the left and right coronary arteries each presented two origins, side by side, instead of one.

Experimental Cerebral Localization.

Dr. Wesley Mills presented the brains from the dog and cat exhibited at two previous meetings (see pages 937-938 of the June number. He showed the portions of cerebrum removed, which he stated constituted the whole of the supposed motor area for these animals. He considered this experiment to bear out what Goltz had pointed out, that dogs were not completely and permanently paralyzed by ablation of the motor areas in the cerebrum.

Dr. T. D. Reed asked if the position of the centers had been determined by electrical stimulation and complete removal verified by the failure of contractions to take place after the operation.

Dr. Mills, in reply, stated that this had been done on one side only, but that even after complete ablation the application of the electrode would still be apt to cause contractions by affecting the white fibres.

Cystic Ovaries.

Dr. T. Johnson-Alloway exhibited two ovaries which he had removed that morning, and which were somewhat of a pathological curiosity. Both, and especially the right, were so distended with a peculiar formation of small cysts as to resemble miniature bunches of grapes. He thought they resembled the condition described as " Roketansky's Tumours."

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

VOL. XXIV. AUGUST, 1895. NO. 2.

RECIPROCITY OR DOMINION REGISTRATION.

At the coming meeting in Kingston of the Canadian Medical Association a committee appointed last year, will report on the important questions of Reciprocity and Dominion Medical Registration. What the result will be, it is difficult to predict. Much will depend on the humor of the delegates from the various provinces, comprising the committee. Judging from the tone of the discussion on this subject, at the meeting of the Ontario Medical Council, the other day, we fear that the representatives from that province will again demand more than those from the Province of Quebec at any rate will be prepared to grant. It will be a great pity if some definite understanding cannot be arrived at on these important questions. Reciprocity would answer the purpose for the present. There is already an understanding between Quebec and Manitoba, so that the licenses granted by the boards of these respective provinces allow candidates to practise in either without further trouble. Quebec and New Brunswick had a similar understanding, up to a short time ago, when some irregularities occurred, and they no longer reciprocate. Reciprocity would be specially desirable between the great provinces of Ontario and Quebec ; both because of the larger population in these provinces, and the very great length of frontier line. Does it not seem absurd that a medical man cannot cross the River Ottawa, to attend an urgent call, and perhaps save a life, without making himself liable to arrest and fine ? Such, however, occurs constantly, and must have the effect of lowering the profession in the estimation of the public, giving them the impression that we are a narrow-minded lot. It is not generally known that even between France and Germany—countries always most unfriendly in other respects—a neutral territory is established, extending for fifteen miles on either

side of the boundary line, which can be traversed without molestation by medical men of either country in the discharge of their professional duties. Let us hope that the members of the committee referred to, and the Association generally, will meet this question in a loyal and fraternal spirit ; so that some amicable and practical understanding may be arrived at.

Some form of Dominion medical registration would of course be the ideal thing, but we fear that that must be delayed until reciprocity has been in operation long enough to satisfy the public and the authorities at Ottawa that we are united as a profession on this subject. The late Sir John Thompson is known to have held the opinion that, while in accordance with the British North America Act, all questions of education were relegated to the various provinces, it was possible to have a Dominion examining board and board of registration, providing only the profession representing the various provinces were unanimous in their presentation of the case to the government in power. This would not necessarily interfere with provincial rights. Each province should, if so disposed, still have its own examining or licensing board, or both, for the purpose of examining and licensing candidates who were going to be satisfied to practise in the limited sphere of that province. More ambitious candidates would prefer the stiffer examination of the Dominion board ; but they would have the supreme advantage of being permitted to practise in any part of the British Empire. It is rather galling to the Canadian to find the Australian graduate in medicine settling in London without further examination by simply paying his registration fee. The Medical Council of Great Britain will give us the same privileges as soon as we shall have arranged some form of federal registration.

THE UNFORTUNATE CONSUMPTIVE.

Reports reach us constantly of the hard treatment to which those suffering from pulmonary tuberculosis are subjected. The hotel-keepers at the various winter resorts on this continent and in Europe seem to be vying with each other in their coarse and almost brutal crusade against the unfortunate consumptive. They advertise openly to the effect that " No consumptive need apply," and the room clerks have in many hotels distinct orders to use their diagnostic powers in the case of all those seeking accommodation. Can nothing be done to combat this feeling and protect these people from insult and possible injury ? Have we as a profession been airing our views too loudly on this pet subject ?

CANADIAN MEDICAL ASSOCIATION.

We have been favoured by Dr. Starr, the Secretary, with the following list of papers and addresses to be read at the coming meeting in Kingston :

President's address—Wm. Bayard, St. John.

Address in Surgery—I. H. Cameron, Toronto.

Address in Medicine—Edward Farrell, Halifax.

Skin clinic—J. C. Graham, Toronto ; F. J. Shepherd, Montreal ; L. Duncan Bulkley, New York.

Physical development and training as a therapeutic measure—B. E. McKenzie, Toronto.

What is the best treatment for the retroversion of the uterus ?—A. Lapthorn Smith, Montreal.

A tumour of the medulla oblongata—J. E. Graham, Toronto.

Report of a case of acromegaly—F. Buller, Montreal.

Notes on typhoid fever in private practice—W. S. Muir, Truro, N.S.

Objective noises in the head—G. Sterling Ryerson, Toronto.

Some practical notes on mental depression—J. V. Anglin, Montreal.

The operative treatment of injuries of the head—A. J. McCosh, New York.

Discussion : James Bell, Montreal, Geo. A. Peters, Toronto.

Final results of gastro-enterostomy—Robt. C. Kirkpatrick, Montreal.

Dysmenorrhœa, report of a case—J. Campbell, Seaforth, Ont.

The importance of early treatment in cutaneous cancers—A. R. Robinson, New York.

The anomalies of albuminuria—Jno. R. Hamilton, Port Dover.

Double orchidectomy in enlarged prostate—E. E. King, Toronto.

Experimental cachexia strumipriva—Wesley Mills, Montreal.

Notes on some of the newer remedies used in skin diseases—L. Duncan Bulkley, New York.

Discussion led by ——— ———

Acute uræmia followed by gangrenous abscess of lung. Appendix abscess discharging through a bronchus—A. McPhedran, Toronto.

Report of a case of spina bifida—J. S. Bray, Chatham.

Thyroid feeding in cases of stupor—C. K. Clarke, Kingston.

Syphilitic manifestations in the eyes—Alfred J. Horsey, Ottawa.

The ophthalmometer—R. A. Reeve, Toronto.

Notes on a case of brain tumour, with an account of its removal—I. Webster, Kingston.

A case of placenta with hydatids ; fœtus with spina bifida—Alex. Bethune, Seaforth, Ont.

The relation of insanity to general diseases—E. H. Stafford, Toronto.

——— ——— S. L. Currie, Cambridge, Mass.

Notes on a case of hernia of the vermiform appendix—R. W. Garrett, Kingston.

——— ——— W. W. White, St. John, N.B.

Some unusual forms of hernia—F. J. Shepherd, Montreal.

Cases in practice—W. G. Anglin, Kingston.

Operative treatment in moveable kidney—James Bell, Montreal.

Asthma—H. J. Saunders, Kingston.

Excursion at 2 p.m., August 29th, by steamer "America," through Thousand Islands; luncheon on board.

OUR NEW SERIES.

The first number of the new series of this JOURNAL issued last month has been well received. We have had numerous congratulatory messages from our friends and subscribers, and on the whole feel very much encouraged. Among those who have promised help in the way of contributions is our esteemed friend and late colleague, Dr. Osler, who, after the New Year, will contribute two or three pages each month under the title of "Ephemorides." We look especially to the graduates of Old McGill for a hearty support.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

The fifth annual meeting of the American Electro-Therapeutic Association will be held in Toronto on Tuesday, Wednesday and Thursday, September 3rd, 4th and 5th, 1895. We understand that for the convenience of those who desire to attend this after the meeting of the Canadian Medical Association in Kingston the preceding week, satisfactory arrangements have been made with the railways. Dr. Lapthorn Smith is to be the presiding officer this year.

—F. W. Skaife, D.V.S, McGill, has been appointed Dean of the Faculty of Veterinary Surgery in the University of California, San Francisco.

—Dr. Roux has been recently presented by the Municipal Council of Paris with a medal for his original researches on diphtheria and the discovery of the antitoxin.

—Lord Houghton, on retiring from the post of Lord-Lieutenant of Ireland, conferred the honour of knighthood upon Dr. Christopher Nixon and Mr. Thornley Stoker, of Dublin.

—Professor Huxley, who died recently, was better known as a scientist than as a physician. After graduation he entered the navy, and it was while abroad on a cruise in the "Rattlesnake" that he first developed that taste for natural history which subsequently made him so famous. He was once a candidate for the chair of Natural History in Toronto University. What a prize was lost to Canada!

THE

MONTREAL MEDICAL JOURNAL.

VOL. XXIV. SEPTEMBER, 1895. No. 3.

Original Addresses.

PRESIDENT'S ADDRESS.

Delivered at the Annual Meeting of the Canadian Medical Association, held at Kingston, Ont., August, 1890.

By WILLIAM BAYARD, M.D., St. John, N.B.

GENTLEMEN,

My days are so far spent that honors do not possess the same charm for me that they did years ago. But let me say to you in all sincerity that I highly appreciate the honour you have conferred upon me by placing me in this chair, to preside over a body of gentlemen comprising between four and five thousand; for our doors are open to every educated and honourable medical man in the Dominion, and covering a district of thousands of square miles.

I accept it as a proof that you did not class me as one of the "fossils of the profession to be placed on the shelf and forgotten." I did not expect it. I feel that I did not deserve it, for circumstances have prevented my attendance at your meetings for many years. But while not with you in person I was with you in spirit, believing, as I do, that associations such as this, tend to educate both the head and the heart; the stimulus of mind upon mind producing a kind of intellectual contagion. Our mutual criticisms and discussion form at once a school and an ordeal, teaching us to be more careful in our classification of the phenomena occurring in our practice, and more correct in our deductions from them. And we are justified in assuming that the great progress made in the healing art during the present century may be largely attributed to the stimulating influence of medical associations.

Our social meetings with the consequent interchange of friendly hand-clasping, tend to create a brotherly love among us. And may that brotherly love ripen and produce a spirit of unanimity and combination by which we can alone obtain that influence which means

power—individually we may possess some—collectively it is small indeed. We are classed as one of the three learned professions, Divinity, Law and Medicine, but we are placed at the foot of the list. I claim that we should stand second. What aim can be higher than the cure of disease and the relief of suffering? Our portals are guarded by more numerous and stricter examinations than all others. We are trusted by all classes. An eloquent writer has truly said: "Go into the abodes of the sick and the poor and the deserted wherever there is disease or distress, there you will find some medical practitioner exercising his glorious art patiently, freely and fearlessly for those whom poverty or vice, or the breath of pestilence, has deprived of every other friend. Or again follow him among the higher class of patients and you will there find him the friend, and honest adviser of those who can seldom hear truth from any other lips."

As Oliver Wendell Holmes aptly puts it: "Hour after hour the "busy day has found the good physician on his lonely round, mansion "and hovel, low and lofty door, he knows his journey, every path "explore."

Its members perform more gratuitous work than those of all other professions combined. It is true the appeals of suffering humanity should be obeyed. But they are given so long and so freely, that the State and the public demand it as a right. Now the question may be asked, is it right or is it just that the State and the public should allow the medical profession to do their medical charity, particularly when it receives such scant recognition at the hands of either? It may be safely claimed that the remuneration paid by the State to any of its medical officers would not equal that paid to a third rate lawyer.

It is estimated that in London one in every two persons receives charitable medical relief at the out-patient department of the hospitals, and that 50 per cent. of those receiving this charity are able to pay for advice and medicine. This statement is corroborated by the fact that there are nearly 80,000 daily occupied beds with a proportionate number of out-patients. This great and laborious work is freely given, "asking no reward save Heaven's 'well done.'" Yet their employers, like the "horse-leech," continually demand more. While the members of the profession should be proud and glad to minister to the sufferings of the deserving poor, they should call a halt, except when the institution is supported by voluntary subscription; by so doing they give their quota, a large one it is true, towards its support. But when the hospital is State-supported, endowed, or becomes a commercial undertaking by receiving pay patients, they

should be paid like members of other professions for services performed. The State has no claim upon them, and it is quite certain that the tax collector does not forget them. It is claimed that it is an honour to be on the medical staff—so it is ; it is an honour to be a Bishop, a Judge or a Recorder, but they are paid all the same. It is also claimed that they are learning. It is hoped that we are all learning daily, but we are more often found teaching.

They should demand and receive more consideration at the hands of hospital-governing authorities, who too often treat them as servants rather than a body of gentlemen performing a gratuitous work, without which the hospital could not exist for a day. It is not long since a noble lord—a governor of a London hospital—proposed a resolution requiring the medical staff to be in their places between the hours of 6 and 9 o'clock in the evening to give advice to those outpatients who could not leave their work in the day time. Good sense prevailed and the resolution did not pass. Recently the trustees of a cottage hospital in the Province of New Brunswick, who had the power of appointing their *confrères*, persistently refused to have a medical man on their board—the staff very properly resigned, when the trustees were compelled to yield. Indeed every properly organized board should have one or more medical men upon it. Who can know the requirements of a hospital so well ? And it may be asked upon what principle should they ever be excluded.

Hospitals are established for the sick poor, but in the present day these are much abused by the attendance of individuals as outpatients seeking advice and medicine who are able to pay, and who would resent being classed as paupers, and who would not dare to ask equal gratuities from any other source. This is cheap charity on the part of the State and those supporting the hospital ; it has a demoralizing influence upon the recipient, and is injurious to the young practitioner, who is thereby deprived of his small fees from persons able to pay them.

The philanthropic work of our profession does not cease with its hospital duties. Knowing that a large proportion of the morality of the human race is caused by diseases that are preventable, its members have persistently kept this fact before the public mind, until now it may be claimed that the cloud of ignorance and prejudice that overshadowed the progress of sanitation has in a great measure disappeared, and the masses are forced to believe that health may be preserved, disease averted, and life prolonged by the observance of known sanitary laws. These laws often impose onerous duties upon medical men and certainly tend to lessen their fees, inasmuch as they prevent

sickness, but they perform them for the love they bear their fellow-man. Here again they may be proud of their work when they reflect that preventive medicine has decreased the general mortality in England since 1755 from 35.5 per 1,000 to 17.85; enteric fever since 1840 from 0.39 per 1,000 to 0.17; smallpox since 1840 from 52.2 per 1,000,000 to 6.5: scarlet fever since 1850 from 97 per 1,000,000 to 17; that of consumption 3¼ per cent. The death rate of the British navy in India has been reduced from 69 per 1,000 to 14.84. The span of individual life has increased, in 1852 it was for women 41.9 years, for men 39.9; now it is for women 44.66, and for men 41.35. It has been estimated that sanitary measures save the lives of 70,860 persons yearly in Great Britain. Much yet remains to be done. Sir Joseph Fayrer informs us that about 125,000 persons die yearly in Great Britain from preventable disease—the consequent sickness causing that number of deaths would mean 78¼ millions of days' worth lost, with a money value of £7,750,000. To prevent disease its cause should be known, and it is impossible to exaggerate the value of the scientific researches which have led to the antiseptic methods of preventing the morbification of micro-organic life. The search-light of science is penetrating the inmost secrets of nature and opening out sources from which may float results of incalculable importance in their bearing upon life and health. Therefore it may be safely asserted that no city, town or municipality can be properly governed without a board of health and that no board of health can be efficient without the support and co-operation of the medical profession. We have ample sanitary laws, but they cannot be enforced without money, and while authorities make appropriations with a free hand for improving the breed of cattle, for competing railroads, and for extravagant school-houses, they dole out grudgingly the minutest pittance for preventive medicine. I think I am safe in asserting that the Provinces in this Dominion do not spend the half of one cent a year per capita for that purpose. This incongruous state of affairs will continue to exist until a wave of popular protest is set in motion proclaiming to our legislators in unmistakable tones the ancient maxim, *Salus populi suprema est lex.* It is quite certain that the knowledge we possess of sanitation is in advance of its practical application. Let us take that dread disease diphtheria as an example. Until recently we were unable accurately to differentiate the true disease from other pseudo-membranous anginas. Now, by the aid of bacterial cultures, with subsequent microscopical observation, we can form a positive diagnosis. When we find the Klebbs-Lœffler bacillus we know that we have the true disease to deal with. This bacillus is found in about

half the cases formerly classed as diphtheria. It is not found in other anginas, but various other cocci are present. The fact that the Klebbs-Lœffler or contagious bacillus has often been found in the throat secretions weeks after the patient was supposed to be well renders it imperative that a bacteriological examination should be made in every case before he is released from quarantine. Doubtless the neglect of this precaution is largely the cause of the spread of the disease in the schools. It is no disparagement to say that few medical men in active practice possess the time, the appliances, or the technical knowledge to make this investigation. Hence the Government should appoint and pay pathological experts for that purpose. The State pays for the administration of its laws, surely the preservation of health and the saving of life have an equal claim. It is unquestionably the duty of the State to use all legitimate means to prevent the spread of contagious diseases, and when those in authority turn a deaf ear to the recommendations of their various boards of health they assume a heavy responsibility.

There are upwards of 4,000 children in St. John who have not been vaccinated. The Government can under the act order compulsory vaccination in any town or district. Two years ago the Provincial Board of Health urged upon the Government the propriety of making the order. Nothing has been or probably will be done until we have a smallpox scare. In January last the same board recommended the appointment of pathological experts—as great bodies move slowly the recommendation may yet produce fruit. Every medical man should have the privilege of sending some of the excretion or membrane from the throat of the suspected case, in a sterilized tube, to the expert, who should pronounce upon it as soon as practicable. This delay need not interfere with the treatment, but it would settle the question of isolation and quarantine.

The expert should make medical jurisprudence and toxicology his special study to enable him to conduct post-mortem examination, test for poisons, enlighten the court and jury in cases of suspected murder. Such an officer would, I think, tend to raise the standard of medical evidence in the law courts by keeping from the witness-box men who too often enter it without having studied the subject upon which they are to be examined—a desideratum much required. The motto of the general practitioner, *Semper paratus*, applies with force to this branch of his profession, for whether he resides in the town or country he cannot escape the risk of being called upon to give evidence. He may argue that a little time will be afforded him to look over his books, but let me assure him that a hurried glance at them—unless he

has previously made medical jurisprudence his study—will not protect him from embarrassment in the witness-box. I have seen such exhibitions as tend to degrade our profession in the eyes of the court. For, believe me, the profession as a body is more or less judged by the shortcomings of the individual members.

Medical men are too often found ranged on opposite sides called for the purpose of contradicting each other—a degrading position, and one that should be avoided as much as possible. The attorney calls upon him, reports the case from his own stand point; the medical man forms and gives a hurried opinion, based, perhaps, on partial information;—it suits the ideas or interest of the attorney who books him as a witness, and when on the stand he finds himself led by subtle questioning to make unguarded statements, which upon mature reflection and further information he would wish unsaid. Another medical man is called, who having made himself master of the subject, in the interest of truth and justice, finds himself in the unpleasant position of being compelled to expose errors of opinion. Hence doctors get the credit of differing when no difference of opinion should exist. This difference of opinion, too often places upon the court and jury who are not educated upon medical subjects the responsibility of deciding who is right and who is wrong. Here the evidence of the expert would largely assist in arriving at a proper conclusion.

In this connection, let me say a few words upon the subject of prosecutions for malpractice. Many years ago I suggested that a committee of five medical men of standing be appointed in each province, to whom all cases of threatened prosecution for malpractice be referred by the accused.

If this committee reports favourably, let him defend it, if adversely, let him make the best compromise he can. I also suggested that in such cases he should in a measure be tried by his peers. In other words, one or more medical men should be on the jury. I think if this could be accomplished, it would lessen litigation and advance the cause of justice. For often we see verdicts given for want of proper knowledge, devoid of reason and common sense.

When I last had the honour of addressing you, I alluded to the injurious effects of the high pressure system of education upon the rising generation, particularly upon those who are to become the mothers of our future race; my remarks met with adverse criticism from some of the editors of our local newspapers, displaying the erudition we should look for from such a source. I have nothing to detract from that which I then said, but would supplement an earnest

recommendation to the governing bodies of our schools to appoint medical men whose duties shall be to advise regarding the healthiness of the schoolrooms—the duration of the hours of study and physical exercise—to classify the children according to their physical or mental ability for study—to point out the correct position when writing—to see that all are properly vaccinated—to detect incipient cases of chorea-defect in vision and contagious diseases, and examine and remedy the defects in the teeth of the children. In fact to protect the health of the scholars. For while education is a great boon, it should not be forced at the sacrifice of health. As Lord Beaconsfield has wisely said, : "The public health is the foundation on which repose the happiness of the people and the power of a nation.'"

It will not be disputed that the location of a schoolhouse, its sewerage, its ventilation and heating, and the cubic floor space allotted to each child, are subjects of vital importance, and observation teaches us that they receive scant consideration. It may be asked who can classify the children according to their ability for study and apportion the exercise suited to each so well as one who has made physiology and psychology a study ? A child enters school having been well fed and full of bodily and mental vigor, another of the same age, poorly fed and weak in body and mind ; both are placed in the same class, the one learns his lesson readily, while the other cannot do so ; he plods over it at home, dreams of it, returns in the morning jaded and worried ; this continues, and ultimately his health breaks down because he is forced beyond his ability. It is notorious that many children, particularly girls, leave school with lateral curvature of the spine, and it is claimed by those who have studied that the position assumed when writing a sloping or slanting hand is largely the cause. The following directions support this claim : Turn your left side to the desk, press the left arm close to the side, place your left hand on the copy book, press your right elbow to your side, point your pen towards your right ear, grasp the pen firmly and write. A better position could not be devised to distort the muscles of the body, the spinal column and the eye. Vertical writing, with the spinal column in its natural position, and the muscles of the body and eye unrestrained, is the common sense remedy. None but a medical man can give a safe opinion as to the quality of vaccination, incipient disease of the eye, or upon the contagious character of an ailment. Another trouble connected with the hygiene of school life may be named St. Vitus dance, a disease frequently caused by mental strain, advancing insidiously, preceded by restlessness, irritability of temper which is too often attributed to carelessness, for which the

child is punished, with the result of aggravating the disease. Here the knowledge of the expert will apply.

Doubtless there are few in this room who have not at some period of their lives suffered from the pangs of tooth-ache; to them I appeal for sympathy for school children, but one in ten of whom are declared to possess normal or perfect dentures. It is claimed that a child cannot study while hungry; may it not be asked can he study when suffering from a jumping toothache? Sir J. Crichton Browne informs us that of 5,249 school children under 12 years of age examined, only 485 were found with normal or sound dentures; that only 25 per cent. of the teeth of infants at 5 years of age were found free from caries; and that in older mouths 10,000,000 of artificial teeth were annually used in England. The conditions in both countries being nearly similar, we may reasonably conclude that a proportionate amount of that disease exists in this country with its disastrous consequences, pain, imperfect mastication, indigestion, &c., &c. I shall not stop to discuss the causation or remedy for this trouble, but dealing with the fact, let me earnestly suggest that this society give an expression of opinion, recommending the authorities to institute a system of compulsory investigation of the teeth of school children and see to state-aided rectification of defects in them. In support of my contention let me quote Sir J. C. Browne, who says: "I contemplate that the dentists employed in this public service would be adequately remunerated for their labours, but the money would be well spent and would yield a splendid return in the increased comfort, contentment, health and vigour of our people. Rather than it should not be spent in so laudable and desirable an undertaking (and truly our school rates are already high) I would willingly see some curtailment of the curriculum which our board schools now offer. Nutrition, I have often said, comes before education. It is wasteful and even cruel to force education. It is wasteful and even cruel to force education on half-starved children, and teeth, I would now assert, come before talents. It is preposterous to confer shreds of showy accomplishments upon children who cannot chew their food, and sure I am that it would be for the ultimate welfare of the country (if so be that adequate tooth culture cannot be otherwise secured) even that the grand piano in some of our London Board Schools should give place, for the time, to the dentist's chair."

There is another subject upon which I wish to say a few words. I approach it with hesitation knowing it to be a contentious one, and one which has called forth the worst passions on the platform and in the pulpit. I allude to the abuse of alcoholic drinks. I believe

that there are none in this room who are not aware of the misery, degradation and death consequent upon the abuse, and I believe that all will hold up both hands in favour of any feasible scheme to abate the evil, assuming that it is the greatest one of the age, and that it calls loudly for remedial measures. What form those measures shall take, is a question that has seriously exercised the minds of statesmen, philanthropists, and the public, some claiming that coercive and restrictive measures will accomplish the end in view, while others declare that such measures will aggravate the evil. Both wishing to arrive at the same goal, in their enthusiasm, deliriously denounce those who differ from them. Denunciation is not argument, injuring as it does a good cause. The subject is of such vast moment that it should be discussed soberly, calmly, and with judgment, from a sanitary and moral standpoint. Statistics prove to us that the evil has become very much less than it was centuries ago, and our observation teaches us the truth of Herbert Spencer's remarks that for a long time past among the upper classes the drinking, which was once creditable, has been thought a disgrace." This is a large step in the right direction, but much remains to be accomplished.

Restrictive and coercive measures have been enacted from the first century—when the Roman Emperor, Domitian, issued an edict prohibiting vineyards in England—up to the present date; yet the results of intemperance are lamentable.

To apply a remedy the cause should be understood. It has been claimed, and I think justly, that the abuse of alcoholics originates in the beneficient instinct which prompts man to seek pleasure and to avoid pain. They will be used so long as they continue to be the best agents known to man to heighten his joys and to make him forget his woes, if only for the time; they will be abused until men have become convinced that they cause in the end more pain than pleasure; and who can educate them upon that point so well as the members of our profession?

There are four remedial measures that present themselves, namely, education, sanitation, local-option and prohibition. Let us appeal to man's brain and to his fears. Teach him the fact that the use of alcoholic drinks cannot when in health benefit him in any way; that the improper use of them is too often followed by the abuse; that they should never be taken without food; that should a craving for them exist, his only safety lies in total abstinence. Impress upon him that the highest attribute of a well-regulated mind is the power of self-control, and that the act of self-government is noble when exercised in the face of temptation—nothing without it—and he who

will not restrain an injurious appetite degrades himself to the level of the brute creation. The sensations of languor, debility and exhaustion consequent upon insanitary surroundings often drive men to the dram-shop. Improve his condition in that respect and you remove a large source of temptation.

The Gothenberg system, a form of local-option, commends itself to the rate-payers, inasmuch as the profits accruing from the public-sale of liquors is appropriated towards the payment of the debts of the municipality. It directs that the whole public-house traffic be transferred to a limited liability company, who shall undertake by their charter to conduct the business solely in the interests of temperance and morality and to pay to the town treasury the whole profit beyond the ordinary rate of interest on the paid-up capital. The capital required was £7,500 and the annual profits yielded £40,000. The population of Gothenburg in 1876 was about 65,000. The number of licenses issued by the new company was reduced from 119 to 56. Of these 13 were transferred to wine merchants for sale and use off the premises of wines and spirits of the higher order 10 were transferred to hotels, clubs, restaurants and cafés, 26 to public-houses and 7 to shops for sale and use on the premises. Bar business was prohibited from 6 p.m. on Saturday to 8 a.m. on Monday. This experiment appears to have worked well, for almost every town in Sweden has adopted it.

Regarding prohibition I have little to say, except that it was tried in the Garden of Eden and failed there. Prohibitory laws have repeatedly been placed on the statute books against the use of alcoholics and in no one instance have they produced the desired effect. Indeed, no law will or can be enforced so long as there is a large minority who disapprove of it and who do not feel that they are degrading themselves by evading it. Such a law would induce smuggling and illicit distillation. A trade in bad small still whiskey would spring up from our woods, and other stimulants and narcotics would be found to take their place.

Now what is to be done with the confirmed inebriate is the question. Argument is useless, the tears and entreaties of fond friends will not influence him ; the finer qualities of his nature are destroyed ; punishment has no terrors for him. Restraint is the only remedy. He is not in the strict sense of the term a lunatic, but practically he is one. The church looks upon him as a sinner, the State as a criminal, while the observing physician knows that he has lost his power of self-control, that he is ruining his health, shortening his life, squandering his

property, and that oftentimes in his delirium he commits acts of violence against those most dear to him. It may be said that the disease was caused by his own act—true, but that does not absolve the State from responsibility. Is he dangerous to himself and others? He certainly is—therefore he deserves the same care as an acknowledged lunatic.

The Dominion of Canada is in advance of all other States regarding its laws for inebriety. Each Province has its law under which the inebriate can be incarcerated, but no individual can be declared an inebriate in one Province and incarcerated in another—each Province is supposed to have an asylum of its own. All governments can not or will not furnish the means for one and the people are unwilling to be taxed for that purpose, claiming that the Dominion Government, receiving a large revenue from the manufacture and importation of the material causing the evil, should pay for the remedy. There is much justice in this contention. The Dominion Government should make an appropriation to each Province for that purpose, or endow one large one for the Dominion, so arranged as to supply the requirements of different classes of patients and with facilities for working at various trades. The profits from the work of the inebriate, after deducting a given amount for his board, to be paid for the support of his family. If such an institution were established it would have a restraining influence upon many, and doubtless a number would be sent from it with power to refrain.

Gentlemen, I shall weary you if I do not bring this desultory address to an end. My chief object has been to remind you of the philanthropic, gratuitous, and beneficial work of the members of our profession, to designate the position they hold as a body in the community, and to appeal for an improvement in that position.

It will not be disputed that they perform more gratuitous work than all other professions combined, that their unselfishness is proved by the the active part they have taken in the establishment of preventive medicine, that they have freely given to the world the benefit of any discovery they may have made, namely, vaccination, the application of the various anæsthetics, antiseptics, etc.—gifts which in their effects upon the well-being of mankind have never been equalled by any body of men—and that they devote their lives, regardless of the breath of pestilence, to suffering humanity.

It may be asked does the profession hold a position commensurate with this great work? Truth compels us to answer no. Is the fault with the State, the public, or the profession? It is apparent that the authorities did not show much appreciation for the work

when they relegated the monument to Jenner placed in Trafalgar Square to an obscure corner at the far end of the Serpentine to be admired by nurse-maids engaged in keeping children from falling into its stagnant water. No such indignity was offered to the memory of the man who originated the postage stamp system. It is well that the charm of the profession lies in the variety of its work, in the sympathy for the sick, and in the scientific interest in its pursuits, not in the shadowy prospects of honours. When one reflects that, he who can tickle the ears of poetry lovers with fine sentiments is created a lord, or a general commanding the bravest troops directing them against a semi-savage horde, himself keeping without the range of shot and shell, receives the thanks of parliament, is presented with a large donation in money, and is created a Lord or an Earl. While the honours conferred upon the members of our profession range from a Baronetcy to that of the lowest grade of Knighthood, and often below that of a politician, a teacher of music, a railroad manager and a play-actor. This is not flattering to the profession. It may be assumed that the honour is bestowed on account of some beneficial service performed by the recipient. And no reasoning mind will compare the service rendered by those named with the beneficent work of Jenner, who, it is claimed, has saved more lives than have been destroyed by gun-powder and the sword since the time of Marlborough ; Lister, who, by his antiseptic system, is said to have saved more lives than the wars of the 19th century have destroyed ; Simpson, who, by his application of anæsthetics, has annihilated the horrors of the operating table ; and Spencer Wells, who it is estimated by his establishment of the operation for ovariotomy has in England and America alone directly contributed more than 30,000 years of active life to woman.

This injustice is so marked that the profession should seek the cause and secure a remedy. It may be asked does not the cause in some measure rest with ourselves? Does such union and cohesion exist among us as should and I think would command influence? Do we support our confrere because he is such? I do not mean to imply that we should follow the dictum of the "noble statesman" whose monument is about to adorn this city, when he said, "he did not thank a man for supporting him when he was right, he wanted his support when he was wrong." I will not go quite so far as that, but I will say support him until you find him wrong. Indeed if we think little of each other the public will assuredly think less.

As we increase the standard of the profession, so its influence should be increased. We may close its portals to all but those who

are highly educated. This will not always guarantee rectitude of conduct. We have an admirable code of ethics, the tenets of which should be indelibly impressed upon the mind of every member, and when religiously observed. leaves little to be desired, but when ignored, all suffer from the degrading act of the delinquent.

A word about fees. I assume that each district has a code of fees, governed by custom or regulation. The competition is such, that some may be induced to give their services for less than the minimum. rate. This would be a grave mistake, for by so doing they proclaim that their services are not worth much, and their patients will naturally take them at their own valuation. The same may be said of the club doctor, who makes a trade of his profession and a slave of himself for a consideration that would be refused by the cab driver who conveys him to his patient.

Let us suppose that some legislative enactment is wished for by the profession, this cannot be obtained without united action. I would suggest the propriety of having the subject discussed at the various medical societies and finally at this one, and when approved by the majority, each member should, regardless of his previous opinion, support the measure and exercise his individual influence towards its enactment. The profession has no recognized representation in the Dominion Parliament. Its members are more exposed to misrepresentation and attack than other professions. The medical councils have some powers of punishment but small ability to protect, and are slow to enforce discipline over those practitioners whose conduct brings discredit upon the profession leaving such members unnamed and unpunished.

The only remedy for this evil would be te grant power to the Councils to protect the profession. This failing, the profession should organize a " Medical Defence Union," such as is doing good work in England. Unjust and speculative prosecutions are often instituted against medical men for malpractice, by persons who have nothing to lose, the result is that the unfortunate defendant, innocent or guilty, is mulcted in costs. In some of the States in the Union adjoining us a law exists compelling the plaintiff to give security for costs. We should have a similar law for the Dominion. Indeed I wish our Councils had power to assess and collect a small sum from each member for such unjust prosecutions.

In conclusion, gentlemen, let me ask you to accept the foregoing remarks as an expression from one whose long and somewhat large experience has taught him the failings and the virtues of our noble profession, and whose earnest wish is to see its virtues made so apparent that the name " Doctor of Medicine " shall be synonymous with all that is good in man.

THE ADDRESS IN MEDICINE.

Delivered at the Annual Meeting of the Canadian Medical Association, held at Kingston, Ont., August, 1895.

By Edward Farrell, M.D., Halifax.

My first duty is to thank you most cordially for permitting me to take the place I occupy to-day. To give the address in Medicine, and at the same time to take the place of one so well qualified to fill it, is no easy task. Were it not for the earnest solicitation of your honoured president, my old friend Dr. Bayard, I would hesitate to take this post of honour among you.

The first thought that occurs to me is,—what grand strides the science of medicine has made in the last quarter of a century. When a traveller comes into a new country where the scenery is beautiful, he is charmed by the first sight of its beauty, and as he goes further on he is equally delighted with each new landscape that opens up to his sight; his mind does not dwell upon any one beautiful picture in his view, he is simply lost in admiration of all the scenes he witnesses, and fails to see the dominant magnificence in any part. So it is with the busy doctor in his daily round, he is so impressed with satisfaction and pleasure in the results of his work; for what can be more pleasant or satisfactory to an educated man with the soul of a gentleman than to have done good—to have brought health, vigour and useful life to his fellow-man. He is so impressed that he does not see in all its fulness the increased power that science is giving him day by day to produce the better results he is able to obtain. None of us have a full conception of the mighty work the science of medicine has accomplished in the past few years. How much our knowledge has increased! In how many things has certainty taken the place of doubt! So much that was hidden has been made plain to our view! How much more pride we should take to-day in the profession of medicine than we ever did before! In recognizing the great increase in our knowledge in the past quarter of a century, while we feel a thrill of pride at the results of the splendid work of these great scientists who have during this short time almost revolutionized the science of medicine, still we must not forget that their work would not have been possible but for the labours of those who preceded them. We naturally associate the great names of Pasteur and Koch with the inception of the discoveries in microscopic life and its influence upon diseased processes. These labourers have opened up to us an unseen world of life, microscopic germ-life, whose function it is to

influence the greater life of man for good or evil as to his physical existence. Still it does not detract from the genius of these great discoverers when we say that they only worked out and made manifest facts in the etiology of disease that were suspected by some observers and believed in by others many years before their names were known to the world.

There are two methods of investigation into the nature of disease which were carried out with much activity during the decade preceding the origin of the germ theory. I refer to clinical observation and the study of morbid anatomy. The labourers in these two great fields of research prepared the way for those who are now developing the newer fields of investigation. Close observation of disease at the bedside, carefully noting by eye, ear and touch the varying changes that accompany its progress, has been and is still a great factor in the growth of the science of medicine. And, again, to be able to observe the changes wrought by disease in an organ, in the *post-mortem* room, gives us positive knowledge. That which we believed, expected or conjectured at the bedside is made plain when the diseased organ or organs are under our eye and touch. It is to morbid anatomy that we owe our first positive and accurate knowledge of the nature of disease, and it soon became the groundwork of a rational system of therapeutics. Surrounded as we are to-day by the brilliancy of recent discovery in medicine, let us not forget to honour those great names of a preceding period who made clinical medicine and morbid anatomy their guide; and the student of medicine of to-day should be impressed with the idea that as the study of anatomy and physiology are the groundwork of the study of "life in health," so clinical work, combined with the study of morbid anatomy, will give him the only basis of an accurate knowledge of "life in disease." However, it is the addition to our knowledge, since we began to hear of the germ-theory, bacteria, sepsis and antisepsis, toxine and antitoxine, and sero-therapy, that has caused the rapid strides that have led up to the height we have now reached. What has been done, then, that has let so much light into the dark places of our knowledge? What is it that has so increased and made accurate what was already known of the true nature of many of the most severe diseases? Two new departments of science adjunct to medicine have arisen within that time which have both changed and supplemented our methods of study — bacteriology and experimental pathology. Since these methods of research have come to our aid we have discovered the cause of disease.

Previous to the advent of these sciences upon the field of action,

clinical observation and a study of morbid anatomy led to the belief that the contagious diseases especially were due to a special poison, but we were ignorant of its nature. We heard and read of the "materies morbi," the "zymotic influence," the "fever poison," and like expressions, which showed that the careful and trained investigators of previous years were able to deduce from observation of the phenomena of disease that a poison existed, but further than this they were unable to go. The belief that the zymotic diseases were caused by parasites was held by many students of pathology in the early part of the century. Henle not only held the belief, but proved clearly that living organisms must be the cause of disease. It remained for the science of bacteriology, with experiment by inoculation of disease upon the lower animals, to make that which was hidden from us before as plain as noonday! To know the cause of disease! How can we estimate the value of such a discovery? It has simply armed us tenfold as physicians in our battle with disease. How can we write calmly and without pleasurable excitement at the contemplation of a discovery that has made us tenfold better able to prevent and cure disease than we were in times past? Truly indeed have the sciences of medicine and surgery been revolutionized within the knowledge of the present generation.

Though we still hold to many old methods and give them due weight and place in our study of disease, we bow down with admiration before the newer discoveries that bacteriology has laid open to our view. The time at my disposal is not sufficient to enumerate the many death-dealing diseases that have been brought under control by our new methods of research, but the subject would be incomplete if I failed to mention some few of them.

Puerperal fever, that filthy and fatal disease! How many valuable lives have been carried away by its malign influence? And no death occurred in the practice of a physician that was so hated and dreaded as this. No death could occur that appealed to our sympathy like that of the young mother with her new-born babe. Do I not call up to the memories of many of the middle-aged practitioners who are listening to me to-day many days and nights of dread and anxiety that they have spent, in the early days of their practice, when this miserable disease was all too common? What shall we say of it now? It has been almost swept out of existence by the advance of science. To have almost banished puerperal fever from among us, if nothing more were done, should shed lustre upon the effort that attained it.

No one of the diseases to which we are liable has been the subject

of so much earnest inquiry and study as tuberculosis. The distressing character of the disease, its fatality, the fact that it spread among all classes and orders of people, and spared neither age nor sex in its ravages, were powerful motives to urge the active practitioner, as well as the student of pathology, to make vigorous search into its true character.

We were thoroughly learned in all the phenomena of its slow but fatal course. Before the science of bacteriology laid the truth before us, we knew everything of tuberculosis except what it was. It remained for that science to find the true cause, the tubercle bacillus. It is true we have not yet reached the point of being able to cure, but we have made a long step in that direction. We have learned this important fact, that it is an infectious disease, and is as communicable from person to person as Asiatic cholera or typhoid fever. We have learned how it can be avoided and prevented.

Again, what a splendid triumph it is to be able to say that we have particularly met and conquered that dread disease, Asiatic cholera, the very name of which but a few years ago would send a thrill of fear and horror through the nations of the earth. As with these so it is with a long list of virulent diseases—typhoid fever, tetanus, diphtheria, erysipelas, glanders, and many others have been traced to the special form of micro-organism which produces them.

There is another disease the mortality from which is very great, and one which is dreaded alike by physician and patient, on account of the prolonged suffering which precedes its fatal issue; I refer to cancer. The cause of cancer still eludes our search, though we have reason to believe it is due to some form of micro-organism, animal or vegetable. At the present time many investigators are working faithfully to isolate the germ of this disease; we earnestly hope that success may soon be within their reach. Let us be thankful that, though our progress in this direction has been slow, we have learned enough to know, or at least believe, that cancer in its very earliest stages is a local disease, and that the system is infected from the first point of growth. This advance in our knowledge has taught us one valuable lesson—that is, that there is only one hope for the patient, and it is by attacking the disease in its very earliest stage. It would not be within the province of a paper on medicine to do more than mention the magnificent opportunities for successful work which the science of microbiology has given to the operating surgeon within the past twenty years.

I desire, however, to trespass upon your time for a few moments while I discuss the question: What share have the English-speaking

people of the world had in this great upward march of medicine and its allied sciences? It must be acknowledged with regret that in the honoured role of scientific workers who have wrought the largest share in advancing this new science of medicine we find the names of many Germans, Frenchmen, Russians, Danes and Italians, and only a few to represent the English-speaking nations of the world. In making this statement I do not forget that it was the genius of the renowned Lister, whose name we all delight to honour, who first demonstrated the practical application of the germ-theory to surgical practice, thereby maintaining for British medicine the high rank and position it had always held in the past. Nor do I forget that among the scientists who have been carrying on this great work we find the names of Burden-Sanderson, Woodhead, Sydney Martin, Ferrier, Horsley, Welsh, Councilman, Vaughan and others; but most of the labour has been done in France and Germany and other European states. It is to the great laboratories on the continent of Europe—to Paris, Berlin and Vienna—that we must go to find both the cradle as well as the school-house of this new science, that has unfolded to us many of the human mysteries of life and death. The brilliant genius, the patient toil and careful study of the men of these and other great centres of medical investigation, have placed the world under a debt of gratitude that will not be appreciated or rewarded until the mighty results of their discoveries upon all forms of life are fully developed and properly understood; for as yet the science of microbiology, with its kindred studies, is in its infancy; and, in the light of what has happened, one is lost in admiration and wonder at the almost infinite possibilities within the grasp of its teaching. In the brilliant galaxy of scientific workers of Europe there is one name that stands pre-eminent among the rest—that of Pasteur. It is to France we look for the birthplace of the new science, and of Pasteur we can say without exaggeration that he ranks among the first of all the great discoverers of science who in times past have enriched the world with their genius. His labours in the study of hydrophobia challenge the admiration of every lover of science.

We regret that in these advances we have not, up to the present time at least, kept pace with other countries.

It is a fact to be regretted that the English, American or Canadian student has to learn two languages besides his own if he wishes to take a full course of study in physiology, pathology or bacteriology.

Within the last few years the larger institutions for medical education in London, New York, Edinburgh, Belfast, Baltimore, Montreal and some other places have been endeavouring to remove the stigma

from the English-speaking world; and now we find grown up in these cities large and well-equipped biological laboratories; but they have been established mainly by the efforts of the scientists themselves, aided in some cases by the munificence of wealthy benefactors. Why, then, should it be reserved for the continental nations of Europe to take the lead in scientific research?

Taking the whole British Empire, including Great Britain and her colonies, together with the United States, we find a population of over one hundred and fifty millions of people who boast, and, in the main, justly so, of being first among the nations of the earth in everything that pertains to advanced civilization. In the world of statesmanship, of literature and commerce, we take first rank. In power, position and influence the two great English-speaking nations are pre-eminent above all others. Why, then, should we take a secondary place in the world of science? It is not that we are behind others in ability or mental calibre; for in every department of life that requires intellectual development of the highest order we can point to names that rank as high or higher than those of other peoples. The reason is a simple one. It is that the continental nations of Europe foster and uphold science, their governments take upon themselves the duty of establishing laboratories, the workers in which are state officials, who are paid by the government and are thus enabled to devote their life to investigation and teaching without being troubled as to the daily wants of themselves or families. With us the very opposite is the case, science is left to the scientist and the scientist pursues his labours unaided by the State, and if he attempts to devote himself to original work he must do so by neglecting the practice of his profession, and it may be see his family stinted in their daily wants. We must state the fact, although it is not creditable to us, that science, which has for its object the preservation of human life and maintenance of health, is lightly thought of in England and the United States. We are all aware that the important subject of preventive medicine, which aims to remove the causes of disease, was not dealt with intelligently by the British people until within the past twenty years. Previous to that time medical schools were teaching hygiene, medical men were labouring to impress its importance upon the people, the medical press was urging the necessity for sanitary laws. It was demonstrated that thousands of valuable lives were being lost every year by preventable disease, yet no interest was awakened. It was not until the Prince of Wales contracted typhoid fever and his illness became so serious that for a time his life was despaired of that public attention became aroused. People began to

ask what this fever was? where it came from? and how it could be prevented? In a short time the trend of public opinion was strongly in favour of sanitary legislation. Parliament soon crystalized public opinion into sanitary laws which, with improving amendments that have been enacted from time to time since, have given England a distinct department of the public service devoted to the public health.

The British people are a commercial people, and the same may be said of their offspring in the colonies and the United States.

If we wish to arouse public opinion in regard to the importance of these new sciences we must show that they have an influence on the material wealth and commerce of the country.

In most countries it is the farmer who is the real wealth producer. In this country farming is by far the most important industry, to it we look for the production of the food supply of the world. When we consider the enormous amount the export of the product of the farm returns to this country we can gather some idea of the immense importance that agriculture is to us. It is not necessary, then, to prove that everything that tends to give a more successful yield to the labour of the farmer should claim the special attention of the Government. I am glad to see that the fact is being recognized, though slowly, that the pursuit of agriculture requires an education in science, and so we find that schools of agriculture, experimental farms, and other means of teaching scientific farming, are growing up among us. But we are only waking up to the importance of this special scientific training, and though we lead the mother country in this respect (for this subject is to a large extent neglected in England) still we are only making a small part of the effort that should be made in this direction. In many European countries, by reason of the fact that science is fostered and supported by the government, its influence upon agriculture, manufacture and the arts is more quickly recognized and applied than in England, the United States, or in this country, and in consequence in many lines of production we find these countries, more especially Germany, are taking a lead with better and more finished articles in the markets of the world. This is more particularly the case in regard to those articles in which the advance of science has influenced production.

This new science of bacteriology has an especial relation to agriculture. As we now know that bacteria have a direct influence upon human life and its diseases, so the life of other animals and plants must be equally under the power of bacterial growth. To show the extent to which this is true it is only necesseary to name some of the diseases of animals that are known to be due to micro-organisms, such

as glanders, tuberculosis, with its poisoning power on meat and milk, authrax or wool-sorters' disease, actinomycosis or lump-jaw. In addition to these there must be other diseases due to bacteria in the various animals used for human food, and the raising of our food products in a perfect and healthy form is most important to the trade interests of the country. Then there must be the special bacteriology of each plant with its various blights, a thorough knowledge of which must be necessary to successful agriculture. The products of the dairy, butter and cheese, are governed in the changes that take place in their manufacture by what was known as fermentation. We now know that this fermentation is a complex process brought about in its different forms by various kinds of micro-organisms and that each organism has the power of influencing the colour, taste and quality of the product. The same may be said of the manufacture of bread, beer, cider, vinegar and wine.

In order to show what science can do in building up a lucrative trade I will call your attention to the extraordinary fact that Denmark at the present time almost controls the market of England in the supply of the best articles of butter. The farmers of Denmark have no special advantage over the farmers of England only this, that in Denmark the Government have established scientific schools in which the subject has been closely studied. Their bacteriologists have succeeded in isolating the various types of germ that produce special changes in the course of butter production, and by the artificial application of these they control and direct the fermentive process.

I will not weary you any further by dwelling upon this subject, as I am afraid to trespass on your time, and I will conclude by urging upon this Association the importance of its relations to the State in regard to this subject; for as it was in the pursuit of the great science of Medicine that bacteriology with its far-reaching influence was given to the world, it would be in the line of our duty as the chief medical organization of Canada to urge upon our Governments, both Federal and Provincial, their duty of founding and supporting schools of experimental science in this country.

If we desire to hold our place among the nations we must no longer depend upon private efforts for this purpose, the Government must undertake this duty and let it be done with no niggardly hand. Let our young men who have a taste for scientific work have an opportunity of exercising their skill. Open places for them where their ability will be rewarded. Let us be able to boast that this greatest colony of the British Empire was the first among the English-speaking people to show that science is no longer an amusement for the

savant or part of the frills of an ornamental education, but that it is a practical training for the every-day work of life, for the health and well-being of the people, and a most necessary factor for the protection of the great interests upon which the wealth of the country depends.

If I would be permitted to make a suggestion I would ask that this Association appoint a committee to enquire how much has already been done in the teaching of experimental science in Canada and to urge upon the Federal and Provincial Governments the need of much further effort in this direction.

I thank you very much for your kindness in listening to this imperfect paper.

Clinic.

LOCALIZED EMPYÆMA DISCHARGING BY THE LUNG—OPERATION—CURE.

Clinical Lecture Delivered at the Moftreal goneral Hospital.

By F. G. Finley, M.D.

Assistant Professor of Clinical Medicine, McGill University; Physician to Montreal General Hospital.

This man, 30 years of age, has entered the hospital for pain in the region of the stomach and occasional vomiting. On enquiry we find the pains have been present for two years and are described as being sometimes dull, at other times sharp and piercing. The vomiting has not been frequent and there have been no other symptoms referable to the stomach. Although not forming any part of his complaint, cough and expectoration have been noticed since his admission, and again on enquiry we find that this cough has been present ever since an attack of pneumonia seven years ago. Three years ago he coughed up a large quantity of matter, about a pint. His general health has been poor since the attack of pneumonia. There have been weakness and inability to work and some shortness of breath.

Coming to the physical examination you notice that the face is pale and there is a rather sallow tinge of skin. Although of large frame his muscles are small and soft. The finger-nails are clubbed, whilst the temperature is normal and the pulse 84.

Examination of the chest shows that the apex beat is in the fourth space just outside the nipple. Expansion is equal, but there is on percussion a hyper-resonant note in front on the right side. Posteriorly there is a flat note on the right side from the angle of the scapula to the base of the lung, and corresponding with this area there is marked enfeeblement of the respiratory sounds and of vocal resonance and fremitus. The sputum is muco-purulent and in part altogether purulent; it is extremely fetid and offensive and of a dirty greyish-brown colour. Neither bacilli nor elastic tissue are present.

The abdominal organs and urine present no departure from the normal.

You will notice that in detailing his complaint far more stress was laid on the pain and vomiting than on any other symptom, yet on examination the seat of the disease is in the chest. We have frequently to correct the impressions conveyed in the history a patient gives us by the results of physical examination. You have already had oppor-

tunities of observing pain referred to the abdomen in cases of thoracic disease, and it is only a few weeks since we had a patient with pleurisy who referred the pain chiefly to the abdomen. If you remember that the lower five or six dorsal nerves supply the skin of the abdomen you will readily understand why pain is referred to the abdomen in such cases.

We find certain physical signs in the chest which are of great importance. In the first place the heart's apex instead of being in the fifth space one inch inside the nipple, lies just outside the nipple line in the fourth space; and secondly, we find a flat note at the base of the right lung. These two facts are extremely suggestive of the presence of fluid in the pleura and are by far the most important signs of that condition. The absence of breath sounds and of vocal resonance and fremitus are also points in favour of the presence of fluid. One fact which we have learnt from the history of the patient throws a good deal of light on the condition. Three years ago he spat up a large quantity of pus and since then has constantly expectorated in moderate quantities. Such a history taken in connection with the physical signs is very suggestive of empyema rupturing through the lung and being expectorated through the bronchi. The localized character of the effusion is explained by adhesions of the pleura cutting a sac off from the general body of the cavity and localizing the collection of pus to the base of the pleura.

To confirm this suspicion I passed a small aspirating needle through the eighth space in the scapular line yesterday and drew off a few ounces of excessively fetid pus. This method of examination is of the greatest value in the diagnosis of chest diseases, and may always be employed where there is doubt as to the presence of fluid. I may say *en passant* that it may prove deceptive to introduce a hypodermic needle when pus is present, as that fluid is frequently too thick to pass through such a fine channel. Empyema is not the only form of abscess which ruptures through the lung. Abscesses seated in the connective tissue below the diaphragm, known as sub-diaphragmatic abscesses, occasionally terminate by rupturing through the diaphragm, pleura and lung and being expectorated. Such an abscess might give very similar physical signs to what we have in this case, the lung being pushed up and replaced by the dull note due to the presence of pus, and the heart being displaced to the opposite side.

The history of pneumonia preceding the illness from which he now suffers is, however, strongly in favour of empyema, as the pleurisy always accompanying pneumonia occasionally passes on to the formation of pus.

The man gives us a very clear account of a splashing sound in the chest, which was present about the time he expectorated the pus several years ago. On placing the ear at the back of the patient's chest and shaking him we fail, however, in eliciting any sound of this character. A splashing sound audible to both patient and physician has been known since the time of Hippocrates and goes by the name of Hippocratic succussion. For its production there is required a cavity containing air and fluid, conditions met with in pneumo-thorax and in rare cases of sub-diaphragmatic abscesses to which air has been admitted by communication with one of the hollow abdominal viscera. Remember that succussion does not occur in cases of simple pleuritic effusion, a condition in which no air is present in the pleura. In the case of our patient we can readily explain the presence of this splashing sound owing to the entry of air from the lung to the pleural cavity containing fluid. The air has now been absorbed, so that we obtain no splashing sound. That there is a communication between the lung and the pleura is shown by the occasional expectoration of fetid pus, in addition to the muco-purulent secretion coming from the bronchi, infected by the discharge of fetid pus from the pleura.

The appearance of the patient might suggest to some of you the possibility of tuberculosis. The pallor and emaciation, the long standing cough and expectoration, the clubbing of the nails, all have a resemblance to this common disease. These symptoms, however, are equally well explained by the long continued suppuration and clubbing of the nails, results from any obstruction to the circulation in either heart or lungs. The examination of the sputum for tubercle bacilli has also proved negative, so that we can exclude such a condition being present, and basal tuberculosis is sufficiently rare to make us cautious in its diagnosis.

Empyæma is a disease which usually ends in death if not relieved. There are, however, several methods of spontaneous cure, of one of which our patient presents an example of the attempt of nature to throw off the disease. In rare cases the pus may be absorbed and the walls of the cavity fall in and become calcified from the deposition of lime salts. In others, again, rupture externally may occur, usually in front of the chest, and spontaneous cure may result. In a third class the pus may rupture through the lung into a bronchus, frequently allowing air to enter the pleural cavity and setting up, as in our patient, a pyo-pneumo thorax. An attempt at this third method of cure has been made here, but although the rupture took place three years ago the discharge still continues, and there seems to be but little hope of cure being completed in this way.

You know that long continued suppuration has a tendency to set up amyloid disease, so that it should if possible be checked. We have so far no evidence of this condition being present, as there is no enlargement of liver or spleen, no albuminuria and no chronic diarrhœa. The possibility of such a complication, however, is an additional reason to endeavour to check the discharge.

I have asked Dr. Armstrong to see the case with a view to operation. The cavity is at the base and is therefore in a favourable position for drainage, and there is a fair prospect that the man may be cured of an affection which has rendered him unfit for any active work for seven years. In the meantime we have ordered him an antiseptic inhalation of thymol, with a considerable amount of benefit in diminishing the fetor of the expectoration.

NOTE.—The thorax was opened by Dr. Armstrong, a rib resected and the cavity drained. Pneumonia, probably due to inhalation of pus during anæsthesia, developed in the opposite side, but the patient eventually made a good recovery and was discharged free from cough and expectoration.

Clinical Reports.

NOTES ON THE LUNGS OF ONE OF KOCH'S EARLIEST TUBERCULIN PATIENTS.*

By J. G. Adami, M.A., M.D., (Cantab.) M.R.C.S., Eng.,
Professor of Pathology McGill University, Montreal.

The lungs in the case about to be recorded possess a certain amount of interest, inasmuch as according to the history given by the patient, a highly intelligent man, thirty-three years old, he was one of the first to undergo treatment under Professor Koch in Berlin.

The patient, A. Rickstrom, was born in Finland and was in good health until 1890, when he suffered from hæmoptysis, followed by a cough, night sweats and progressive emaciation. He was admitted under Koch at the Victoria Hospital in Berlin and there continued for fifty-two weeks undergoing periodic inoculations with tuberculin. Under this treatment his appetite improved, he began to gain flesh, and the night sweats passed away. He returned to Finland, and his health appeared to be restored. In June, 1893, he came to Canada and was employed as a skilled mechanic in the engineering laboratory at McGill University. He remained apparently in perfect health until January of this year, when the cough returned, and all the old symptoms—night sweats, loss of flesh and bodily weakness. On March 20th there was an hæmoptysis, about half a gallon of blood being lost; on the 23rd and 24th there were two severe hæmorrhages From this time until April 18th, he being now a patient under Dr. Stewart at the Royal Victoria Hospital, there was constant slight expectoration of blood with but little cough. On this last date severe hæmorrhages recurred, in all about a quart of blood being lost. Following upon this there was rapid loss of power, and the patient died ten days later.

At the autopsy it was noticeable that there was no indication of tuberculosis other than in the lungs, save for some quite recent and minute ulcers in the jejunum and ileum. The lungs, however, presented very characteristic tubercular changes. There were firm adhesions at both apices—so firm that on the left side the knife had to be employed to separate them. Both apices showed old tuberculosis in the shape of well-encapsuled caseous masses and small contracted cavities with dense envelopes and smooth but uneven internal aspect. In addition, the upper two-thirds of the uppermost lobe of the right lung and the upper half of the upper lobe of the left lung were greatly consolidated, contracted and presenting very well-marked

* Read before the Montreal Medico-Cairurgical Society, June 28th, 1895.

interstitial fibroid change. Here evidently in both apices were to be seen the results of treatment in 1890–91—abundant signs of arrest of the tubercular process. It was, however, clear that the process had only been arrested—for the rest of the lung tissue was the seat of numerous rather large miliary tubercles, which from their distribution were broncho-pneumonic—distributed along the course of sundry bronchi. Injecting the pulmonary arteries with water led to the escape of the fluid through one of the main bronchi of the upper lobe of the left lung. Following this up a long cavity was entered into containing a globular laminated clot over what was the seat of rupture of the artery. Some difficulty was experienced in finding the actual lesion, the artery filled with thrombus escaping detection for some little time.

Bringing all these facts together it would seem most probable that the second attack of advancing tuberculosis was not a second infection, or infection anew, but originated in the old arrested foci of the disease, where the process lighting up again in the walls of one of the old incom pletely contracted cavities had been followed by dissemination of the virus throughout the air passages, and had prepared the way for rupture of arteries passing along the walls of the cavity.

The recent tubercles were most numerous in the neighbourhood of the old tubercular disturbance. It was interesting to note that upon microscopical examination they were found to be surrounded with very little pneumonic disturbance; they were not of the rapidly advancing type, but on the contrary were in general fibroid, with distinct caseous centres and large outer zones of developing fibrous tissue. This would indicate one of two conditions—either the bacilli causing the lesions were relatively attenuated, or the reaction on the part of the tissues was relatively considerable. We should be prepared to accept the latter alternative if, as is not impossible, the beneficial effects of long-continued tuberculin infection last for a considerable period, but I know of no case in which this has been demonstrated for periods longer than a few months. It should here be added that the microscopical appearances of sections of the lungs were in harmony with the clinical history and with the general results of the autopsy. The pectoral and other muscles were fairly well-developed and of good colour; there was a fair amount of subcutaneous fat.

But perhaps the most interesting feature of the specimen was the evidence it gave of the extent of pulmonary tuberculosis capable of being arrested by Koch's treatment. Both apices had clearly been the seat of extensive tuberculous change. There was extensive tubercular pleurisy, much caseation, and the development of numerous (five or six) cavities in the two apices. The treatment that the patient had undergone during his year's stay in the Berlin hospital had succeeded in bringing the lesion to a standstill during four years.

A CASE OF CARCINOMA OF THE CARDIAC END OF THE STOMACH WITH UNUSUALLY NUMEROUS METASTASES.*

By C. F. Martin, B.A., M.D.,
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AND
A. A. Robertson, B.A., M.D.,
Senior Resident Physician Royal Victoria Hospital.

The present case, which has been under the care of Prof. James Stewart at the Royal Victoria Hospital, is reported to this Society not as being one of great rarity but rather as being an interesting example of the various means whereby cancer may extend through out the body, of the great inroads it may sometimes make, and of other features which may concurrently occur.

The patient, C. M., æt. 50 years, entered the Royal Victoria Hospital on March 24, 1895, complaining of inability to swallow or retain solid and liquid food. His occupation as a rancher in the Northwest had always induced an active mode of life, while his frame convinced one of his great athletic powers. He was accustomed to luxuries and had used alcohol to great excess for many years.

For his present ailment he first consulted a physician in the autumn of 1894, his symptoms pointing to some gastric affection. His manner of living had suggested the diagnosis of gastritis and treatment therefor had been adopted with temporary relief.

Early in March he again had recourse to the physician, and now for the first time manifested his inability to admit any kind of food into his stomach, while even liquids would occasionally regurgitate. A tube was at once passed and met an obstruction at the lower end of the œsophagus and the patient was forthwith removed to Montreal. On the journey he developed marked œdema of the leg, which had evidently some relation to the long-standing varicosity of the crural veins constantly aggravated by riding. On admission his condition was briefly as follows: Great weakness, some emaciation, occasional syncopal attacks and a preference for a sitting position. Marked œdema of the left leg with some lividity; pulsation of the left femoral scarcely perceptible. No spontaneous pain anywhere except in this leg Tongue coated; ingestion of solids impossible, and almost constantly rapid regurgitation of liquids. The regurgitation was performed with ease and attended by no retching. Bowels constipated, abdomen

* Read before the Montreal Medico-Chirurgical Society, April 19th, 1895.

retracted. Liver area much increased, the liver surface presenting some large circumscribed nodules. No signs of dilatation of stomach, nor of vermicular movements. Only a very small bougie could be passed into the stomach, on account of a marked stenosis at the cardiac orifice. Heart and lungs presented no special abnormality. Urine contained small quantities of albumen and sugar. The diagnosis was not difficult—cancer of the cardiac orifice of the stomach with secondary involvement of the liver and probably of the pancreas. The treatment carried out was feeding by means of the stomach tube, the administration of opiates and stimulants, and attention to the local œdema.

Progressive emaciation and weakness followed, however, and forty-eight hours before death several syncopal attacks with great respiratory distress followed, in one of which the patient suddenly died.

Autopsy.—(Owing to certain restrictions only a partial examination could be made and the thoracic organs were removed through the diaphragm.) Body was that of a large, well-built man, 185 cm. long, with the usual signs of an early post-mortem condition. Œdema of the lower limbs was marked, especially on the left leg, where gangrene of the three central toes had developed in the distal phalanges. Moderate panniculus and muscular development. In the abdominal cavity about 100 cc. of thin, turbid, brownish fluid. Liver descended 10 cm. below costal margin in mammary line. The omentum contained a moderate amount of fat and was adherent to the subcutaneous tissues about the umbilicus, where a large firm nodule 3 cm. in diameter was found, giving the usual appearance of a cancerous growth. Elsewhere throughout the omentum were various other smaller nodules similar in character. Spleen small, soft, with wrinkled capsule; no metastases. An accessory spleen of small size was also present. Left kidney large, heavy and very firm, 15½ cm. long, weight 355 grms. Its fatty capsule was infiltrated with cancerous growths, which likewise involved the adrenal. The new growth further invaded the subjacent kidney substance, forming a nodule the size of a pea; the condition otherwise was that of chronic parenchymatous inflammation. The lymph glands about the renal artery were greatly enlarged, one about the size of a walnut; all presented cancerous infiltration. Right kidney was similar in size to the left; its outer surface presented two small growths within the capsule and not connected with any adjacent neoplasms whatever.

Right adrenal was of about twice its normal size, extremely firm on section and showing general carcinomatous involvement. Liver enlarged firm and heavy; weight 3575 grms. Its surface of a

greenish brown colour, and dotted over by numerous nodules of various sizes and densities, some resembling the tubercles of Parre, others showing no degeneration at all. There was elsewhere the usual amount of hæmorrhage and cyanotic atrophy present, but no evidence of cirrhosis. Portal vein and larger bile ducts free. Gall-bladder distended with thick dark green bile. Its serous coat dotted over with several small new growths.

Stomach and œsophagus were removed together. In the former were some coffee ground contents. The upper half of the œsophagus was normal, while the upper portion of the lower half presented numerous nodules of new growth isolated rather than in groups, and from here downwards the nodules increased in size and number till the last fifth was reached, where one diffuse cancerous mass was found continuous with a similar mass in the cardia of the stomach, thereby forming a marked stenosis of the orifice, through which a No. 8 silver catheter could just be passed. The most extensive change was in the cardia itself and the post-œsophageal tissues. The mucosa showed here an extensive old ulceration, which extended also along the lesser curvature for about 8 c.m., the parts farthest from the œsophagus being evidently the more recently affected. In the periphery of the ulceration and elsewhere dotted over the stomach, especially over its posterior wall, were numerous smaller nodules.

The pancreas showed diffuse cancerous infiltration, as did also the diaphragm. There was no involvement of the mesenteric glands, nor did the intestines seem to be affected, though they could only be partially examined. The thoracic duct was free.

The pericardial cavity and surface of the heart were normal. Within the right ventricle were three pediculated thrombi, the largest about the size of a filbert nut. They all presented softened centres, forming typical pseudo-cysts. The valves were all normal and apparently competent. Coronary vessels slightly atheromatous, the muscle fatty. In the lungs, which were greatly congested and heavy (their respective weights being 800 and 600 grms.), there were many hæmorrhagic infarcts visible from the surface. The subpleural lymphatics were distinctly dilated, while here and there the small cancerous masses could be seen, the largest of the size of a pea.

Section into the lung showed, in addition to the infarcts, great œdema and bronchitis, with multiple emboli in the pulmonary arteries. Some of these were firmly adherent and evidently undergoing considerable organization Further, the lowest fifth of the left lung was firmly consolidated, apparently fibroid. The peribronchial glands were of great size and consistence, evidently cancerous, while one

of them, adherent to the trachea at its bifurcation, had induced extension into the latter structure, where the tracheal mucosa showed a yellow grey nodule, already partly broken down.. Supra-clavicular glands did not seem to be affected.

The crural veins showed thrombosis on the left side. The artery in its course through Scarpa's triangle was free.

No further examination was permitted and the autopsy was hurriedly brought to a close.

Microscopic examinations of the various tissues showed the presence of a columnar-celled carcinoma, evidently originating in the cardiac end of the stomach, extending secondarily to the œsophagus, where the growths showed the same kind of cells. The squamous epithelium of the œsophagus nowhere showed any more proliferation than could be explained by the chronic irritation due to varied causes.

The liver, kidneys, adrenals, pancreas, glands, trachea, &c., all showed the same characters of neoplasm as was seen in the primary growth, viz., columnar or polyhedral cells of epithelial type. The base of the left lung manifested a pleurogenous fibrosis without discernable evidence of cancer. The tissues of the toe immediately above the gangrene showed organized emboli in the arteries and veins, but no evidence of cancer. The thrombi in the crural veins and those in the heart and lungs were of a non-malignant nature, evidently marantic.

The condition above given is thus of considerable extent and the modes of extension numerous.

Originating in the cardiac end of the stomach, the condition spread thence by the lymphatics, both to the œsophagus, and along its own mucosa; and by direct extension to the prevertebral tissues and the pancreas. From here the contiguity of the left adrenal and kidney favored progression in this direction, while the other kidney was apparently affected by infection through the blood stream. The nodules in the liver may have originated in various ways, the portal veins being one of the main tracts, inasmuch as cancer cells were frequently found in their lumina, though the main vessel remained free. Following upon this infection, the diaphragm, from its position, became involved and likewise the omentum. The extension to the lungs was either by direct contact, or through the newly formed lymphatics of the pleural adhesions. The involvement would naturally include the glands to which these lymph channels lead, while the further extension by contiguity to the trachea is, so far as we are aware, a rather rare condition.

As regards the site of origin, it is generally recognized that disease

of the cardiac end of the stomach is rare; in most instances, the œsophagus is the primary seat, the condition there leading by extension to secondary involvement of the stomach.

In giving statistics of the frequency with which cancer affects various portions of the stomach, Orth places but 10 per cent. in the category of cardiac cancers; others regard the affection as still more rare. In this connection it may be of interest to quote Fagge's views, based on examination of the records of Guy's Hospital and of the Pathological Society. "I may at once state my opinion," he says, "that almost all cases that have been set down as examples of cancer affecting the cardia, have really been instances of cancer of the end of the œsophagus, extending into the adjacent parts of the stomach. . . . . Indeed on a priori grounds we should expect that a part at which the digestive tube is opening out into a large cavity, should have little or no tendency to be affected with the disease, in comparison with the narrow passage above it."

In our own case, however, there seems no room for doubt; the oldest and most extensive ulceration and fibrosis are immediately about the cardia, while the affected portions along the lesser curvature are undoubtedly more recent; at the same time the microscopic appearances preclude entirely the possibility of an œsophageal origin.

A CASE OF SCURVY.*

By H. A. Lafleur, B.A., M.D.,
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AND
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T. W., aged 58 years, a checker by occupation, was admitted to the Montreal General Hospital on May 1st, 1895, complaining of general debility. His illness commenced suddenly in the beginning of March with chills, shooting pains in the chest and constant dull frontal headache. The pain settled in the hips and back and was severe enough to confine him to the house for about ten days. He has continued to lose strength for the past five weeks, and has noticed that he suffered from shortness of breath on slight exertion and that an eruption has appeared on his legs. At the same time his gums have become tender and bleed while he is cleaning his teeth

His dietary for some time previously has consisted almost exclusively of bacon and eggs. but as he became weaker he was confined to tea and toast. Vegetables formed no part of his diet.

On admission to the hospital his appearance was that of an intelligent, fairly nourished man. He stated that he was born in Ireland and that at the age of 19 he had enlisted in the British Army, in which he had remained 21 years; since then he has acted as checker. Forty years ago he had jungle fever while in India, but no other illness.

He stated also that during the two months previous to his admission to the hospital he had lost about 50 pounds.

Though fairly fleshy the muscles were flabby, the arcus senilis was well marked, the conjunctivæ injected. He complained of a dull, heavy, constant pain in the calf of the left leg, the pain being much worse when the leg was squeezed or put to the ground.

Both tibiæ showed previous fractures and above the seat of the fracture of the left tibia the leg was swollen and slightly œdematous. The skin of both lower extremities was dry and harsh and the hair follicles were prominent, giving a goose skin appearance. On the lower extremities and the lower part of the stomach was seen a papular eruption of a dark red hue, more marked on the extensor surfaces than on the flexor. The papules were separated from one another, were well marked, measured from one to two millimetres in

* Read before the Montreal Medico-Chirurgical Society, May 27th, 1895.

diameter, did not fade on pressure and were situated about the orifices of the follicles ; no itching accompanied the eruption.

Behind and to the outer side of the right knee was a hard, flat, subcutaneous swelling about two and a half inches long by one inch wide. A similar though smaller one was seen on the right olecranon process. The skin covering these was bluish-black. No pain or tenderness accompanied the swelling. Over the body and extremities were ecchymotic areas with subcuticular nodules, producing an appearance as though he had been bruised.

The pulse was 80, regular, easily compressible, and the artery was slightly sclerosed.

The cardiac impulse was not visible ; the cardiac dulness was increased to the left and reached transversely to a point just inside the nipple line. Though there were no adventitious sounds, the heart sounds were very weak.

The tongue was clean ; the teeth were very tender and would not permit him to masticate solid food ; the gums were congested, of a bluish-red colour, soft, and could be lifted from the teeth ; even on slight pressure they would bleed.

The urine had a specific gravity of 1020, was clear, had a slight flocculent precipitate, contained no albumin or sugar.

The blood showed 75 per cent. of hæmoglobin and 3,750,000 red cells to the cubic millimetre. There was no poikilocytosis.

Examination of the eyes by Dr. J. J. Gardner revealed no retinal hæmorrhages and the fundi to be normal. There was no night blindness.

The treatment consisted in a generous diet, containing plenty of fresh vegetables, lemons in the form of lemonade, and an iron tonic ; in addition to these he was kept in bed till his strength returned. The improvement was rapid and at the time of his exit he felt in good health and fairly vigorous.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Pernicious Anæmia.

RALPH STOCKMAN. "Remarks on the nature and treatment of pernicious anæmia."—*British Medical Journal*, May 4th, 11th and 18th, 1895.

The aim of Dr. Stockman in his remarks on this subject is to show that pernicious anæmia is not a disease in itself, but that it is a condition secondary to numerous remote or predisposing causes which, in certain individuals only, result in the degree of anæmia and the train of symptoms characteristic of the illness.

The current opinions regarding this condition are reviewed under three headings:

Is pernicious anæmia a distinct disease? He believes that generally this question may be answered in the affirmative, but among those who have devoted much attention to the subject there exists great difference of opinion. As far back as 1822 Dr. J. S. Combe refers to the unsettled opinions on this question. In Addison's application of the term "idiopathic anæmia" undoubtedly a condition the same as that now designated by pernicious anæmia was referred to, while Biermer, Quincke, Bristowe and Coupland regard it as not a disease in itself. Eichhorst holds the view that some cases are primary, idiopathic or essential, others secondary. Dr. William Hunter's opinion is that pernicious anæmia is to be regarded as a special disease both clinically and pathologically.

Turning to review his consideration of the second heading or question, What cases are to be regarded as pernicious anæmia? the author here also presents some diversity in the views held, but the conclusion arrived at is "that pernicious anæmia is not a disease *sui generis*, but simply a collection of symptoms characteristic of the highest degree of anæmia." Since the day of Addison the number of cases which fall under the class of "idiopathic anæmia" has been very much

diminished, and that some are yet so classified still implies lack of knowledge. Such striking identity of clinical pictures produced by causes so widely different can afford but one conclusion—that already drawn—which has the support of the highest authorities, Nothnagel, Habershon, Quincke, Müller, Bramwell, Coupland and many others.

The immediate cause of the condition forms the third division of the author's consideration of current views. All writers have hitherto regarded the immediate cause to be either a deficient blood formation or an excessive blood destruction. Among the views presented those of Mott and Hunter are chiefly dealt with. The former assumes that the extensive destruction of the red blood cells is an excess of the normal blood-destroying function of the liver and spleen, while the latter holds that the excess of iron in the liver distinguishes pernicious anæmia from all other varieties of anæmia, and accounts for this excessive deposit of iron by the theory of a cadaveric body, the product of some micro-organism, disintegrating the red blood corpuscles in the portal vessels, and there only.

In the next place Dr. Stockman presents his views, which are:

(*a*) Pernicious anæmia follows usually on well-recognized debilitating causes.

(*b*) Anæmia induces in some persons degenerative changes in the vascular system.

(*c*) These degenerative changes permit the occurrence of numerous minute internal hæmorrhages, which ultimately lead to a high degree of anæmia.

That degenerative changes occur in the heart and vessels appears from the evidence of Combe, Addison and Wilks, whose observations have received abundant confirmation from all observers, without exception. The exact nature of the degenerative changes is not decided, nor does the author regard this as an essential point. And further, that minute internal bleedings do occur is affirmed by writers of wide experience, among whom the author quotes Biermer, Eichhorst, Müller and Pye-Smith.

The chief feature in Dr. Stockman's paper is the endeavour to prove that in these hæmorrhages satisfactory cause may be found accounting for the usual symptoms of pernicious anæmia. Enumerated these symptoms are:

(*a*) Extreme anæmia along with a usually fat and well-nourished appearance.

(*b*) The yellow colour of the skin, blood serum and fat.

(*c*) Excess of iron in the liver and other organs.

(*d*) The richness of the red blood cells in hæmoglobin.

(*e*) The excess of urobilin in the urine.

(*f*) The fever.

Taking these in the above order the author refers them to the "minute internal hæmorrhages." Much more profound anæmia is brought on by chronic small bleedings than by large hæmorrhages. In the former the patients adapt themselves to small quantities of hæmoglobin, while in the latter the change is too sudden. The fat remains, as it cannot be oxidized in the absence of hæmoglobin. The blood plasma will not deteriorate before the digestive organs fail to change the food in a fit condition for absorption.

The yellow colour of the skin, blood serum and fat is due to the altered hæmoglobin dissolved in the blood serum, the result of absorption from hæmorrhagic areas.

The excess of iron in the liver and other organs is accounted for on the ground of excessive destruction of hæmoglobin in the extravasated blood. This is borne out by observations in cases of purpura, severe fractures with extravasations and in malaria, as well as by experiments on animals, the livers and spleens from which contain an excess of iron from induced subcutaneous hæmorrhages

The richness of the corpuscles in hæmoglobin so commonly noticed in pernicious anæmia is due to the same condition, and, favoured by a diminution in the number of the red corpuscles, those remaining are more richly supplied. Urobilin, a derivative of hæmoglobin, is very frequently increased in conditions of pernicious anæmia.

The explanations of febrile conditions is not so clear in the author's mind, but in his remarks upon this point he refers to the irritation of the heat centres in the nervous system, by small hæmorrhages, and also suggests that the blood condition may be the active cause, as febrile movements have been observed in chlorosis and in animals rendered anæmic.

Some cases regarded as pernicious anæmia do not present in the blood examination a relative increase, or the normal amount of hæmoglobin, nor do the organs, especially the liver, in such cases when examined, show the presence of iron in quantities characteristic of pernicious anæmia. Such cases are those in which the extreme degree of anæmia present was reached through external hæmorrhages, hence the absence of iron for glandular deposition. As examples, coming under this case, prolonged cases of epistaxis and those due to intestinal parasites are cited.

The difficulty of explaining why more of those exposed to debilitating influences do not develop degenerative vascular changes is analogous to that found in attempting to explain insanity and phthisis,

for those in whom these diseases develop form but a very small proportion of the number of those exposed to the exciting or immediate causes of the same. In this connection Dr. Stockman does not deny the possibility of the existence of a cadaveric poison as Hunter points out.

With regard to the treatment, the author says it should be based on etiological considerations, and reviews several conditions as those due to intestinal parasites, hæmorrhoids, menorrhagia, privation and hardship, syphilis, etc. After referring to the time-honored practice of giving iron, arsenic and phosphorus, reference is made to transfusion, only to point out its comparatively unsatisfactory results. Any reference to the treatment of this condition is incomplete at this time without mention of and remark upon the use of bone marrow. Good results may have been obtained, but it is difficult to account for them. By analysis of the yellow and red marrow in use in different hospitals it was found that besides being composed almost entirely of fat with some connective tissue, the yellow variety contains $\frac{1}{65}$ gr. of iron to the ounce, while the red variety contains about $\frac{1}{30}$ gr. of iron in the same quantity. Dr. Stockman remarks, "Clearly it cannot be the iron which is beneficial, if benefit does result."

W. F. Hamilton.

Pericarditis.

Aldred S. Warthin. "Accentuation of the pulmonary second sound an important sign in the diagnosis of pericarditis."

In an interesting paper on this subject the author cites a series of five cases, showing the importance of an accentuated pulmonary second sound as a physical sign for the early diagnosis of pericarditis, when no other accountable reason for such accentuation exists.

In some of his cases the patients had entered the hospital with symptoms pointing more or less definitely to some cardiac disease; in others the symptoms were less marked, but in all there was a notable accentuation of the pulmonary second sound, this being of a peculiar clangorous nature. In some cases he had observed murmurs simultaneously, though these would soon disappear, giving place to a characteristic friction sound, heard best along the left border of the sternum—later effusion developed. When recovery took place all the signs of cardiac disturbance disappeared, and the writer concludes therefore that the signs present were all of a pericardial nature, the first evidence of onset being this accentuation of the second pulmonary note. He regards it as always an early sign and emphasizes the necessity of making careful and repeated examinations of the heart whenever a basal murmur (apparently hæmic) is attended by

accentuation of the pulmonary second sound. Although appearing early in the disease, it is the last to disappear.

Warthin further asserts the value of this sign with reference to the early treatment. Three of his cases were being allowed violent gymnastic exercise, which from the nature of their disease produced dyspnœa, præcordial distress, etc., while had the early manifestations been taken into consideration they might have obviated the evils resulting from not giving to an already over-worked heart its necessary rest.

Similar instances of an early diagnosis have been recorded by Josserand, of Lyons, to whom Warthin expresses his indebtedness for an explanation of this physical sign and with whose views he fully coincides. As a rule pericardial exudations are commonest and greatest in quantity over the infundibulum of the pulmonary artery, and the subjacent muscle is greatly congested. Hence there exists an abnormal consistence of the structures in front of the pulmonary valves, leading naturally to a better conduction of the sound resulting from their closure.

C. F. Martin.

Surgery.

Gall Stone Surgery.

KEHR. "Gall stone surgery."—*Medical and Surgical Reporter.*

The Germans have been doing some good work recently in gall stone surgery. Dr. Kehr thinks that too few operations are performed for gall stone, and that many patients now at Carlsbad should be under the care of a surgeon. Most surgeons who have had any experience in gall stone surgery will probably agree with this view. The operative treatment is attended by but little danger when done by an experienced surgeon, and is seldom, if ever, followed by a relapse. The public will soon learn this.

Dr. Kehr says the urgency may be great, although consequent enlargement of the liver and tumour of the gall-bladder may be absent, and that biliary colic is sometimes a consequence of adhesions between the gall-bladder and the pylorus. In operating Dr. Kehr would separate these adhesions. He is also strongly in favour of removing the gall-stones from the cystic duct or the common duct by incision and immediate suture of the opening. His results have been good.

ELLIOT. "Cholecystotomy and cholecystenterostomy."—*Annals of Surgery,* July, 1895.

This article is written in the belief that the operations of cholecystotomy and cholecystenterostomy have become too much the routine practice in the relief of gall stones.

The author holds that incision of the ducts or gall-bladder followed by immediate suture is the proper operation in the majority of cases, and especially recent ones.

Dr. Elliot reports a case of (1) removal of an impacted stone from the hepatic duct and immediate closure of the duct; (2) removal of stone from common duct and suture of the duct. In this case a cholecystostomy had been done some time before the operation on the duct. When last seen the gall-bladder was still discharging externally. (3) Stones removed from the cystic duct by syringing them back into the gall-bladder. The opening in the gall bladder was immediately closed and dropped back into the abdomen and a small gauze drain placed near the suture line in the gall-bladder. (4) Immediate suture of gall-bladder after extraction of stones.

Bad results from leakage of bile have rarely been reported in late years There seems to be very little danger of this accident if the common duct is clear and the walls of the gall-bladder are in a moderately healthy condition, and only such cases are suitable for immediate suture.

The question is can we in any given case make sure that the common duct is free and the bile sterile? Will it not be found to be good, safe practice in all cases of incision into the cystic, hepatic or common duct to do a cholecystostomy, as recommended and practiced by Kehr in seven cases, to prevent the pressure of bile from straining the duct sutures, as well as to establish drainage for the ducts?

Dr. Elliot places a sand-bag under the back so that the patient is bent over it. In this position the intestines gravitate to the lower part of the abdomen. The ducts are palpated and if a stone is found it is grasped between the thumb and forefinger of the left hand and raised as much as possible. The duct is incised longitudinally over the stone and the sutures inserted before the stone is removed. Two rows of sutures are used, one of catgut for the duct itself and silk for the overlying peritoneum. A small drainage tube is passed down to the duct and surrounded with gauze.

TUFFIER. "Lumbar choledochotomy."

Tuffier read a paper recently before the Societé de Chirurgie de Paris suggesting that the common duct be approached from the loin. This method of removing a stone from the common duct occurred to him while he was exploring a tumour in the region of the right kidney. When the kidney was raised he could feel the gall-bladder and common duct filled with stones. After experimenting on animals he decided that this operation was possible, and he gives the following directions for carrying it out :

Place the patient on left side with a pillow underneath the loin. Make an incision parallel with 12th rib and a finger's breadth below it, commencing at the angle and passing inwards 15 cm. and deepen the incision until the lower end of the kidney is found: this he pushes up with a broad retractor. The inferior vena cava is raised and pushed inwards and the second portion of the duodenum along with the head of the pancreas is drawn outwards. By means of the finger a cord can now be felt at the bottom of the wound, which passes upwards and consists of the common bile duct, and its accompanying vessels. By careful dissection that portion of the common bile duct which lies in the pancreas and behind the duodenum can be isolated and examined. The author has performed this operation in

ten bodies and in no case failed to find the duct. This method of operation is also suggested as a possible way of evacuating purulent foci situated in the pancreas.

An interesting discussion followed, objection to the operation being taken largely on anatomical grounds, it being argued that the duct would be difficult to approach in that way, and that there would be great liability of wounding the inferior vena cava, hepatic artery, portal vein or pancreas.

Suture of the Heart.

DEL VECCHIO. "Suture of the heart."—*Ref. Med.*, April, 1895.

Del Vecchio gives his results of experiments on dogs. He thinks that the heart in case of wound can be successfully sutured. He showed a dog at the last congress in Rome whose heart he had sutured after it had been wounded in two places. The dog was killed forty-two days after suture, and at the autopsy it was proved that one of the wounds had pierced the endocardium and entered the ventricle. He prefers interrupted sutures. In case of death from wound of the heart the fatal result seems to be due to the presence of the blood diffused into the pericardium. It would be a nice question to decide whether to open or aspirate the pericardium and thus induce a greater flow of blood, or not to interfere, on the ground that the pressure of clot in the pericardium tends to check further escape.

Results of Excision of Knee-Joint.

HUTCHINSON. "On the results of excision of the knee-joint."—*Archives of Surgery.*

Dr. Hutchinson has been able to follow the four cases of excision of the knee-joint that he has done in private. One died of acute tetanus and the other three made perfect recoveries.

In all these three cases the recovery was by firm, bony anchylosis. In none has the slightest trace of sinus remained, and in none has there been any return of the disease. All the patients have for long laid aside any mechanical protection or appliance. It is needless to say that they are all very much better off than they would have been had amputation been performed. Possibly, also, they are as regards absolute freedom from any liability to relapse, better off than many of those who now recover after what are considered less severe operations by incisions, scraping and drainage.

It is thirteen years since the last case was done.

Suprapubic Lithotomy.

HEATH. "Stone in the bladder."—*Brit. Med. Journal*, June 1, 1895.

Mr. Heath gives a most instructive clinical lecture on the removal of stone from the urinary bladder by the suprapubic method. The following short history is interesting.

"The operation is a revival of a very old proceeding, an operation which was done, so far as we can tell about the year 1560, by a French surgeon, Pierre Franco, and it appears to have arisen in this way: He was going to remove a stone by the perineal operation, but found that it was so large that he could not do so; and then he found that the stone could be easily pushed up above the pubes, and accordingly he cut down upon it there and took it out without difficulty and the patient did perfectly well."

It has been very little practised for the last 250 years. The great lithotomist Chiselden took it up in 1700, but abandoned it in favour of the lateral perineal operation.

In 1878, an article in the *Edinburgh Medical Journal* drew attention to the effect on the bladder of distending the rectum. Again, in 1880, Petersen, a Danish surgeon, of Keil, quite independently promulgated the notion that if you distend the rectum and at the same time the bladder, you would get the effect which Dr. Gasson pointed out. So Petersen invented the rectal bag which is a sausage-shaped or conical india-rubber ball, which is pushed into the rectum and distended with fluid and the bladder being also filled, is raised, and the peritoneum is pushed up out of the way.

The concluding paragraph of Dr. Heath's lecture shows clearly his opinion of the suprapubic as compared with the perineal:—

"I do not want to trouble you with the details of perineal lithotomy, because you will probably never see it done. The suprapubic method seems so thoroughly to have established itself among surgeons that one may easily look forward to its being the operation of the future.

G. E. Armstrong.

Pathology.

The Phagocytosis Controversy.

PFEIFFER, R. "Zeitschrift für Hygiene," XVIII., 1894, p. 1.
METCHNIKOFF. "Etudes sur l'Immunité,' VI.—*Annales de l'Institut Pasteur*, IX., 1895, p. 433.

In the whole range of pathology there is assuredly no study of more fundamental importance than that of the means whereby the organism protects itself against injurious agents, and certainly at the present moment the most fascinating branch of this study is that of the means employed by the organism to resist the invasion and growth within it of micro-organisms. Notwithstanding the amount of enthusiastic research of the highest order directed towards this end opinions are stil divided on the matter, and we have the two main schools of those who regard the destruction of microbes as being mainly brought about by the instrumentality of the bodily humours, and those who place in the front rank the power possessed by certain cells of incorporating and subsequently digesting the microbes. Between these two schools the war has been waged for now nine years, and while of late there has steadily increased in importance and weight a third or intermediate school, there remain numerous and influential adherents of the most extreme views of either side.

The articles quoted above indicate very correctly the attitude taken by the two opposing schools, and represent well their strength as well as their weakness. They are more especially worthy of attention in that for once we have an attempt made by one party in the controversy to repeat conscientiously the experiments of the other. Such attempts are far too rare at the present day, and when they are made they demand the most favourable comment. It is altogether too common for bacteriologists to endeavour not to confirm the researches of their fellow-workers by careful imitation of the methods employed by them, but to confute their researches by investigations along other lines, and as a consequence confusion and contradiction are paramount. But that the confusion is not wholly due to this cause is made very clear by observing the way in which two leading bacteriologists occupying almost identical positions arrive at widely different conclusions from a study of the same phenomena. Pfeiffer is the director of the research laboratory at the Hygienisches Institut

(Koch's) at Berlin, Metchnikoff director of the research laboratory at the Institut Pasteur in Paris.

In the long series of his studies upon the resistance of the organism to the invasion of microbes, Pfeiffer has shown himself a zealous adherent to the theory of bactericidal action of the bodily humours. While at first he wholly overlooked the phagocytic action of the leucocytes and other cells, he has of late (in connection with influenza and cholera) acknowledged that this may be abundantly manifest. However, he still considers it as purely a secondary phenomenon, and where, as in certain experiments of Issaeff carried on his laboratory, he observed a definite relation between the phagocytosis induced and the destruction of pathogenic microbes, he regarded the change as being of the nature of resistance "pro tem." and as distinct from long continued and true immunity.

In the paper quoted at the beginning of this article, Pfeiffer calls attention to a very remarkable phenomenon. If a guinea pig be repeatedly "vaccinated" against the cholera spirillum until it has been rendered highly refractory and insusceptible to inoculations of doses of the spirillum in amount many times greater than that which would swiftly kill ordinary guinea pigs, and a suspension of virulent virus be injected into its peritoneal cavity, or if an unvaccinated animal be taken, and into its peritoneal cavity there be injected virulent spirilla, to which has been added a small quantity of the serum of a highly vaccinated guinea pig, then the following changes are observable. From ten to thirty minutes after the inoculation, drops of fluid removed from the peritoneum are found to contain very few leucocytes but numerous minute motionless granules. These granules are nothing more nor less than modified germs, which in place of being comma shaped have become swollen and globular. These observations have been repeated and extended by Max Gruber, Dunbar and Metchnikoff. There can be no question now as to their correctness.

Here then we have proof positive of the extra-cellular modification of pathogenic germs—of the action of the humours of the body upon them. The modification cannot be due to phagocytosis, for leucocytes are largely absent—only at a later period is phagocytosis observable.

According to Pfeiffer this modification of the spirilla is destructive, is, in fact, a death of the organisms, and the bactericidal substance is a secretion from the endothelial cells of the peritoneum. In a later paper* he acknowledges that the leucocytes may contribute to the

* Zeitschr. f. Hygiene. XIX. 1885, p. 87.

secretion, but he still holds to the endothelium as playing the main part in its production.

These most important observations have been greeted by the extreme adherents of the humoral theory as driving the last nail into the coffin of phagocytosis.

Metchnikoff, as I have stated, has repeated and confirmed Pfeiffer's observations, but his examination of the matter throws a very different —or more truly, a fuller—light upon the nature of the phenomenon.

In the first place, it is to be noted that this "phénomène de Pfeiffer" occurs only under very special circumstances: it is not to be observed as a general rule; and if it proves that microbes can be destroyed by extra-cellular action it certainly affords no proof that such extra-cellular destruction is the common method whereby the system frees itself from harmful micro-organisms.

In the second place, Metchnikoff points out that there is a very striking relationship between the phases of the process and the conduct of the leucocytes. Under normal conditions the peritoneal cavity contains a varying quantity of lymph which is turbid through the presence of large numbers of leucocytes of all kinds. But, as Issaeff has shown, the introduction of diverse substances in the cavity leads the fluid to become rapidly clear; the leucocytes become broken up and dissolved—and Metchnikoff points out that if, in Pfeiffer's experiment, the peritoneal fluid be examined five minutes after injection of the spirilla, numerous leucocytes are observable, but they are profoundly modified—are immobile and present various stages of degeneration and dissolution. To this process Metchnikoff gives the barbaric name of Phagolysis: he points out that it affects only those cells which are potential phagocytes, the lymphocytes being unaffected. Thus the relative absence of leucocytes noticed by Pfeiffer is by no means an indication that these cells have played no part in the extra-cellular destruction of the microbes. That the endothelial cells take part in the secretion of the bactericidal substance is purely presumptive, and cannot be proved experimentally; that the peritoneal leucocytes can alone lead to the production of the phenomena has been proved by a very pretty experiment. The blood serum alone of a highly immunized guinea pig will not cause the spirilla to assume the globular modification—nor again will the peritoneal lymph of an ordinary guinea pig—but if a drop of this last fluid be taken, and to it be added a minute quantity of the above mentioned serum, together with a few spirilla, and the mixture examined under the microscope, identically the same series of changes is to be made out as is to be seen in the successive phases of the experiment of Pfeiffer. This experiment

renders it extremely probable that the bactericidal substance is liberated from the leucocytes in the process of dissolution.

Metchnikoff, however, would proceed further and declare that this action alone is incapable of destroying all the spirilla; that some are only modified and not destroyed. He points out:—that if the swollen globular spirilla be transferred to broth and placed in an incubator a typical growth of spirilla is the result, and that if Pfeiffer's experiment is carried further there is to be seen a rapid increase of the leucocytes in the peritoneal fluid. that these act as phagocytes, taking up the modified but still living microbes, and, in short, that without phagocytosis the bactericidal and extra-cellular action of the peritoneal lymph would be incapable of arresting the subsequent growth and multiplication of the cholera germs. Pfeiffer, it may be added, has taken the exactly opposite view that the fact that cultures of the spirilla can be obtained from the peritoneal fluid after his phenomenon has attained its climax, is due to the leucocytes in taking some of them up having prevented the bactericidal action, and so having preserved them alive! Metchnikoff shows by an interesting series of experiments, which space forbids that I should detail, that Pfeiffer's view is untenable. He shows further that where a non-fatal dose of spirilla is injected into the peritoneal cavity of an ordinary untreated guinea-pig there is then no sign of Pfeiffer's phenomenon, but the spirilla can be recognized retaining their characteristic shape and being actively motile until in the course of a few hours there is a pronounced multiplication of leucocytes and, with this, phagocytosis and destruction of the microbes. Once within the leucocytes in such a case the spirilla undergo the spherical modification—a further indication in favour of the assumption that the bactericidal process is of a similar kind, or induced by the same substance, both under intra- and extra-cellular conditions.

Accepting, then, the main facts here adduced, we arrive at the following conclusions:

1. That pathogenic bacteria can be destroyed by other than intracellular means, and that thus phagocytosis is not the sole weapon possessed by the organism for their destruction.

2. That even when extra-cellular destruction of the microbes is actively proceeding phagocytosis may be an auxiliary factor.

3. That the bactericidal substance leading to extra-cellular destruction of the microbes in Pfeiffer's experiment would appear in the main to be liberated from the disintegrated leucocytes.

4. That the "phénomène de Pfeiffer" is only to be observed under particular conditions, and supplies no proof that under more usual

conditions extra-cellular destruction and bactericidal action of the humours play the predominant part; on the contrary, phagocytosis can be clearly recognized under the more usual conditions in the absence of distinct evidence of extra-cellular destruction of the cholera spirilla and would appear to enter into the final stage of Pfeiffer's experiment.

The weak point in Metchnikoff's position during the last two years is that while frankly accepting facts of this order, which show that bacteria can be destroyed in the organism by other means than direct ingestion by the cells, he is loth to include them in the theory which he has built up in such wonderful detail and with a perseverance and ingenuity that is little short of marvellous. It is only natural that having worked for so many years towards the one end of establishing the importance of phagocytosis he should find it hard to accord anything like the same value to other methods of destruction of pathogenic germs in the system. All the same the adherent of phagocytosis, pure and simple, has ceased to exist; the adherent of the humoral theory, pure and simple, remains as far as ever from establishing his position.

It is after all but a small matter to the organism as a whole whether living or dead and modified leucocytes achieve the destruction of pathogenic micro-organisms. The important matter is that it is achieved, and that, in the main, through the instrumentality of the leucocytes, so that we can pass beyond the mere knowledge that microbes are destroyed and can appreciate to a fuller extent how the destruction is brought about.

J. G. Adami.

Society Proceedings.

THE CANADIAN MEDICAL ASSOCIATION.

The meeting of the Canadian Medical Association held in Queen's University, Kingston, August 27th, 28th and 29th, under the presidency of Dr. Wm. Bayard, of St. John, N.B., was a successful one, all the provinces being represented except Manitoba and British Columbia. Many excellent papers were presented.

Diagnosis and Treatment of Retro-displacements of the Uterus.

This was the title of the first paper, and was read by Dr. Lapthorn Smith, of Montreal. He attributed the causation of this condition to miscarriages, forced labours, over-strain, falls on the back. Relaxed conditions of the muscular system in which the round ligaments (which were muscular) shared was another predisposing cause. The diagnosis in uncomplicated cases was easy. When there was associated displacement of the ovaries or tubes, with an inflamatory condition present, the diagnosis was not so easy. In such cases, if the sound were used, it should be introduced most gently. Methods of replacement were then described. In cases where operative procedure was necessary to retain the uterus in place, the writer recommended Alexander's operation or ventro-fixation, the technique of which he gave.

Dr. FARREL, of Halifax, said that when operating in these cases he had an assistant hold the uterus up with a sound, and in this way a much smaller incision was required. In one case which he had operated on, the patient showed signs of intestinal obstruction four days after operation. After placing the patient in the Trendelenburg position and shaking the hips strongly, a sudden and severe pain announced the fact that the obstruction had disappeared.

Sir WM. HINGSTON said retroversion without adhesion was not difficult to deal with. With patience it would not be necessary to resort to Alexander's operation or ventro-fixation. With a stem pessary the uterus might be kept in position for a few weeks when the organ would retain its position unaided. He preferred ventro-fixation to Alexander's operation.

Dr. WHITE, of St. John, reported a case in which he had done ventro-fixation, The uterus was healthy but enlarged.

The President's Address.

Dr. WM. BAYARD then presented his address. (See page 161.)

Sir JAMES GRANT pointed out how the general practitioner suffered by the free treatment at hospitals of patients able to pay. In regard to the question of sanitary science much had been done, but there remained much to do. He agreed that state paid officers should be appointed to do special and bacteriological work as the ordinary practitioner had not the time nor the apparatus for doing it. Sir James advocated also the establishment of abbatoirs. All foods, such as milk and meats, should be rigidly inspected for the presence of tuberculosis and other diseased conditions. As to the educational question, he believed that instruction should be provided along lines that would be helpful to the man in his after work in life. There was too much indiscriminate work done and too much asked of each individual child. It was a matter of regret that the youth of the country were fleeing from it into the cities, leaving the honourable calling of the farmer and seeking a place in the over-crowded professions. In the matter of liquor drinking he pointed to the immense decrease in it; he remembered how common it was for him to be called to treat cases of delirium tremens, cases which he seldom saw now. Socially the custom was "going out."

At this juncture Dr. WESLEY MILLS exhibited two cats, from which he had removed the thyroid glands twenty-four hours before Tonic spasms, dyspnœa, emaciation, almost entire inability to walk, and facial respiration, were the most noticeable features.

Physical Training as a Therapeutic Measure.

Dr. B. E. MCKENZIE drew attention to the difference between athletics and gymnastics, and stated the various exercises included under the latter. In the hurry of modern life it was too often forgotten that a man required a sound physical organization to possess a high degree of mental attainment. The dress of women was a matter of vital importance. Many pathological conditions were induced by the tight lacing. A contrast was drawn between the figures of women with natural and unconstricted waists and those of women who laced tightly. He pointed out that in the former, as well as in the best Greek models, the waist measure was little less than that of the chest, To correct the mal-formation and its *sequelæ* the corsets should be thrown off and physical development practised. He advocated the introduction of such instruction into the public schools under medical supervision. Where spinal deformity, apart from diseased conditions, was present, it should be remedied by change of dress, massage and drill, by which the patients are taught to correct their own errors. Dr. McKenzie's method, as shown by the relation of several histories of cases, consists in first showing the patient in a mirror the actual con-

dition, and how much by her own effort it can be corrected and maintained, in encouragement of the patient to assume and retain always the corrected position, and in a course of gymnastics to train the weakened muscles to maintain the proper position, The important points are to re-educate the individual, to teach her self-dependence, and to get her to co-operate patiently and perseveringly with her adviser in securing a cure. The doctor presented photographs of patients showing the original spinal deformities and the same patients after treatment.

Dr. Louis Sayre, of New York, said that this subject was one of immense importance, and he was glad it was being brought before the profession in the different parts of the country. Physical training had not been attended to at all, and it tended to the ruin of the elements that sustain a national life. The mental and moral force of a nation depend on the physical condition of its people. The training must be systematic. It was not so much the training of the brain that was needed. To correct lateral curvatures it was not instruments, not machinery, not splints and plaster jackets that were needed, but training. He had seen imbecile children unable to walk, squint-eyed, and generally incapacitated, under a few months' treatment become transformed physically and mentally.

Dr. Reginald Sayre commended Dr. McKenzie's method of treating these cases. In too many cases the massage and manipulations were unsatisfactorily given by those who professed to carry out this treatment. When properly carried out the effect of this treatment was marked on the circulatory and nervous systems as well as on the muscular. In some cases where the bones were distorted, a supporting apparatus was helpful ; just as one would apply an apparatus to a child with rickety legs and hold them until the bones could sustain the weight, so he found it necessary to support the rickety spine until it was sufficiently firm to support the weight of the head and shoulders.

Dr. Roddick said that from a considerable experience with these cases he believed that if the cases were seen early enough one might promise a cure by properly conducted physical exercises. In one class where there was marked osseous deformity, one could never promise a cure ; all that could be done was to prevent the mischief from becoming worse. It was very necessary to place cases for treatment in the hands of intelligent instructors. He did not believe it was good practice to place these patients in a class with well children. They should be trained in classes by themselves. Exercise would be more guarded then. In the more severe cases, beside

the teaching, in the interval some support should be given in order to keep what is gained. He had used a light Sayre jacket in cases of lateral curvature. A spinal brace or stay was also useful, and might be left on during a long journey, but never during exercise. Care should be taken in prescribing exercise for lateral curvature not to develop the stronger side, thus aggravating the mischief. The use of the mirror was advantageous, as it appealed to the vanity of young ladies especially, inducing them to unbend the curvatures by airing their exercises before the mirror or between two mirrors properly arranged. In a recent visit to Egypt he had noted that there were none of these spinal cases there. This exception was said to be due to the custom of carrying water bottles upon the head. In order to maintain the balance, the muscles of the spine are always brought equally into action. He had given an order to the person in charge of his cases that the patients might carry a weight on the head occasionally.

Dr. McKenzie said that he never promised a cure in any case. He thought it inadvisable to use any supports at all. It would defeat the object in view of educating the patient to self reliance.

The Address in Surgery

Was delivered by Dr. I. H. Cameron, his subject being the present status of cerebral surgery. This field of work was opened by Macewen in 1876, and began to be generalized in 1884. The essayist went on to deal with the present status of the subject in its different departments, dealing first with fractures of various kinds and their surgical treatment. He then referred to the matter of hæmorrhage, meningeal and cerebral, to tumours, cysts, and abscesses. Some references were made to modern operations on the brain, to the instruments employed, and the application of surgery to diseased states of the brain, such as epilepsy. Elaborate statistics were given of the results achieved.

Dr. J. E. Graham related the history of a case of sarcoma of the medulla oblongata. He also presented the tumour which had been obtained post mortem. The patient was aged 52. Eight years ago had typhoid, after which he never felt quite as well as before. Had rheumatism three years ago, lasting three months. In 1894 he had la grippe. One evening, returning home, he fainted, striking his head against a window sill, the injury being on the back of the head on a line a little below the occipital protuberance. Toward the end of the summer he grew weak, being unable to stand unsupported. In attempting to walk he would fall toward the left. In February, 1895, he noticed a numbness on the left side of the face, which subsequently extended to the neck, arm, and forearm on the same side,

tactile sense remaining unimpaired. Electrical reaction normal. Other symptoms supervened which made him consider himself seriously ill. He suffered from occasional attacks of vomiting. He complained of some headache in the occipital and frontal regions. Dizziness and vomiting increased. A lesion of the cerebellum was suspected. An attack of pneumonia set in from which patient died. Post mortem a small, spindle-celled sarcoma of the medulla was found attached to the restiform body. The essayist then exhibited diagrams showing the position of the tumour and pointed out its relations. He gave a *resumé* of the bibliography on the subject.

Removal of the Membranum, Tympani and Ossicles.

This was the title of a paper by Dr. BULLER, which will be published in the October number of the JOURNAL.

Cold Baths in the Treatment of Typhoid Fever.

Dr. OSLER, of Baltimore, gave the result of five years experience with this form of treatment. He stated that when the patient's temperature rose above 102½° he was placed in a bath at 70° F. every third hour. To patients with heart weakness strychnine and alcohol in small doses were given, particularly after the bath. Milk, broths and egg albumen constituted the diet. Three hundred and fifty-six cases had come under treatment in the hospital, with twenty-five deaths. The mortality was 7.02 per cent. of all cases and 6.3 per cent. of the bath cases. It was to be remembered that hospitals were usually given the worst cases. In certain cases the baths were contra-indicated—as where the temperature did not rise to 102½°, in very mild cases, in cases markedly asthenic; and where serious complications were present, as hæmorrhage, perforation, etc. So that the Brandt method had not been strictly followed. The beneficial effect was not wholly due to the antipyretic action, but to the general tonic effect. Although not in favour of the treatment at one time, he had become an advocate of it, having seen its good effects in his own cases, as well as in those of the large hospitals in other portions of the globe. From statistics gathered it gave better results than any other form of treatment.

Dr. MUIR, of Truro, N. S., referred to annual epidemics of typhoid he had experienced following river freshets. He pointed out the difficulties of carrying out the cold bath treatment in private practice, of the opposition of the patient's friends, and of the danger to the medical man's reputation if serious results followed the cold baths. He condemned the use of the ordinary antipyretics. His watchword was, watch the pulse, not the temperature. The speaker said most of his patients died from bowel complications. To avoid

constipation he used small doses of Rochelle salts, and for an antipyretic, alcohol. His death rate was 8.1 in 159 cases.

Skin Clinic.

Drs. J. E. Graham, of Toronto; L. Duncan Bulkley and A. R. Robinson, of New York, gave a skin clinic. The first patient was suffering from alopecia areata.

Dr. Graham pointed out the various signs of the disease as could be demonstrated in the patient, and enquired into the patient's life history and the treatment she had been subject to. The alopecia had become general, although it commenced in a small area some three years before when the general health was poor. No particular cause could be elicited. It was difficult to say whether it was parasitic or not; some authorities contended that it was a tropho-neurotic affection. In these cases he advised chrysophanic acid, blisters or mercurials externally, and nerve tonics internally.

Dr. Robinson pointed out that no changes in the scalp were observable in these cases. The name alopecia areata was not a good one for the disease; it might be applied to the head when the affection causing the alopecia was something altogether different. He leaned to the parasitic theory of causation, as histologically examined inflammatory signs were present. The fact that the spots varied from the size of a pea to a patch three or four inches across was against the theory of its being a tropho-neurosis. With this microbic theory as to causation, rational treatment would consist in constitutional treatment and local parasiticides.

Dr. Bulkley said that syphilis was excluded by the way the hair had fallen and by the appearance of the stumps. If the disease was a microbic one, it was not contagious, and in this respect differed from favus. To diagnose from tinea tonsurans a scraping, to which a drop of liquor potassa and glycerine had been added, would show the presence or absence of the tinea germ when examined under the microscope. Certain forms of seborrhœa would cause the hair to act like this, but the absence of inflammatory elements exclude the disease. The commencement of the disease in a small area extending circumferentially pointed to alopecia. The prognosis in these cases was good if one could hold the patient long enough and do what should be done. His theory as to the causation was the neurotic one, and until he was convinced otherwise he would treat accordingly with nerve tonics. Any systemic disorders required attention. As to diet he recommended fats and phosphates, these being the constituents of the hair. He gives milk in excess, always on the empty stomach, fats of beef and mutton, oil and butter, crushed wheat and fish. As to local treat-

ment, he would not put chrysarobin on the scalp, the objection being its extreme staining quality. He used strong mercurial preparations. Another remedy which he had demonstrated as helpful was the application of pure carbolic acid. His theory as to its action was the same as that attained by the use of blistering, *i.e.* blistering.

The next was a case of eczema seborrhœacum in a boy aged three years. It was usual to class this as a kind of psoriasis, until Unna discovered that it was a parasitic eczema. The vesicular and papular condition was shown, and its commencement as little reddish-brown patches extending at the periphery covered with scales. Its decreasing presence on the body from above downward was another interesting point. The difference between it and toxic eczema was pointed out. Salicylic acid and sulphur and resorcin are among the local remedies, while astringents are quite useless. Dr. Bulkley recommended for the scalp the following lotion: Resorcin ʒii, alcohol ʒiii, glycerin ʒiv, aquam ad ʒiv, ℞. Sig—To be dropped from a medicine dropper when the hair is lifted up.

Three cases of psoriasis were then shown and discussed.

The Operative Treatment of Injuries to the Head.

Dr. A. J. McCosh, of New York, dealt first with compound depressed fractures, stating the necessity for lifting the fragments as soon as possible after the injury. The symptoms of such a condition were detailed and also the technique of operation. The fragments of bone removed by the trephine or chisel might be replaced if proper care was taken. The question of complications was also discussed. Where the dura mater was lacerated it was difficult to know whether to suture. To do so was a protection against hernia cerebri. The handling of cases where the continuity of the scalp was unbroken and injury to the brain had occurred was outlined.

The speaker had operated on six cases of epilepsy resulting from old head injury, in three of which a permanent cure had resulted. He also gave the histories of a number of cases illustrating the points which he had touched upon.

Dr. Jas. Bell, of Montreal, said brain injuries had not always been treated with sufficient promptitude in the past. He had seen a number of cases die from hæmorrhage where early operation would have saved the patient's life. It was better to open the skull unnecessarily a dozen times rather than let one die for the want of operation. Generally speaking the dangers from head injuries were direct dangers from hæmorrhage—not from the loss of blood, but the pressure of the clot upon the brain within the unyielding cranial cavity—and the driving in of spicules of bone. The question of asepsis was of the greatest

importance in these cases, the occurrence of meningitis depending upon sepsis. The speaker compared the symptoms of an infective with those of a non-infective inflammation, the difference being attributable to the presence of the septic material. It seemed to him that frequently the very obvious lesion of depressed bone in simple fracture without pressure symptoms was more apt to attract the attention of the physician than the more serious, but less obvious leisons of internal injury, such as rupture of the middle meningeal artery or one of its branches. He detailed the history of a case where there was manifest injury to the scalp on one side of the head, accompanied by symptoms calling for operation. An opening was made but no lesion found. The patient was too weak to be subjected to a second operation on the opposite side. At the autopsy rupture of the middle meningeal artery on the opposite side was found. In operating, Dr. Bell said he preferred to use the chisel rather than the trephine.

Dr. G. A. Peters, of Toronto, said that surgeons were almost unanimous in the opinion that an operation should be undertaken in head injuries where there was fracture without depression with symptoms of compression, and also in cases of fracture with depression without such symptoms. If cases of the second kind were left alone as some were disposed to do, serious symptoms and irreparable damage might follow, such as epilepsy. The doctor pointed out the necessity of enlarging the wound in cases of punctured fractures to ascertain whether or not there were any spicules of bone impinging on the brain substance. If the surgeon kept the wound aseptic, there was little danger of hernia cerebri. He thought it wise to retain the dura mater wherever possible.

Dr. W. W. White, of St. John, N.B., related the history of several cases that had come under his notice. The first was an operation for depressed bone in a coal heaver who had been struck with a piece of coal. A chisel and mallet were used. Perfect recovery ensued. He also related the case of a child that had received a fall, followed by paralysis of the right side, accompanied with loss of speech, the dumbness lasting six months. Relief followed the absorption of the clot.

The address in medicine was delivered by Dr. Edward Farrell. (See page 174.)

The Newer Remedies in Skin Diseases

was the title of a paper read by Dr. L. Duncan Bulkley, of New York. Among those used in local treatment he referred more particularly to the value of resorcin, ichthyol, europhen and aristol.

Dysmenorrhœa.

Dr. J. Campbell, of Seaforth, read a paper on dysmenorrhœa, accompanied by anteversion of the uterus and stenosis of the os internum. He outlined his treatment of the case as first, rapid dilatation with applications to the endometrium, afterwards galvanism, and finally laparatomy with extirpation of both tubes and ovaries. This was followed by a complete cure. The ovaries on removal showed a cystic condition which seemed to be the only element to account for the symptoms of the dysmenorrhœa which persisted after the dilatation.

The Importance of Early Treatment in Cutaneous Cancer.

Dr. A. R. Robinson, of New York, pointed out and illustrated with drawings the pathological condition present in the varied classes (as regards position) of epithelial growths, and showed the relation the progress of the clinical symptoms bore to the pathological condition, from a study of which rational treatment could be decided upon. It was, he contended, at first purely a local disease and quite amenable to cure if removed before the deeper structures were involved. In the cure of these cases the essayist said that he always used the knife. He condemned strongly the use of applications of nitrate of silver to small growths of a suspicious character. This often only aggravated the mischief.

Dr. Wesley Mills, of Montreal, presented a second time the two cats from which he had removed the thyroids. They showed considerable advancement in the symptoms. He described the method of operating. He pointed out the varied theories held as to the functions of the thyroid. It was certain that they were a necessity in doing certain work for the blood. The speaker pointed out the great complexity of the blood, and that no analysis of it could express what this was. He dwelt on the action and reaction of cell life upon cell life, of one organ on another, and the effect of the removal of certain organs on the individual physically and mentally. He pointed out the difficulty, remembering the foregoing, of ascertaining the whole function of any gland such as the thyroid, the suprarenal, the pituitary. The science of a complete physiology could never be perfectly realised.

Thyroid Feeding in Stupor.

Dr. C. K. Clarke, of Rockwood Asylum, Kingston, read an interesting report on this subject. He stated that he had observed, as others had done before, the effects of acute disease on these cases of stupor, how that it benefited many, in some cases effecting a complete cure. In the first case reported in his paper the patient was almost

a hopeless dement. Upon the administration of the thyroid extract improvement began and gradually progressed until the cure seemed to be almost complete ; when suddenly the patient, without apparent cause, relapsed back into his former condition. In other cases, however, the writer reported the effects to be well marked, a permanent cure resulting. The doses given went as high as twenty grains.

Hip-joint Disease.

Dr. SAYRE, Sr., of New York, then gave a clinic on hip-joint disease Two patients were shown. The speaker showed how he conducted the examination of a patient suffering from this trouble. The patient was completely stripped from the chest downward, two tapes were applied to the front of the body, the one reaching from the ensiform cartillage to the pubis, the other joining the anterior superior spinous processes. These should be at right angles. It was found that with the spine held well down to the hard table the sound leg could be twisted and turned in any direction without tilting the pelvis, the affected limb being held flexed to such a degree as to allow the back to be kept flat down. Then upon attempting to straighten the leg on the diseased side the pelvis would tilt up. It was shown that when slight traction was made in the line of flexion in which the limb was most comfortable, that ease was at once experienced. This indicated the line of treatment—to fix the joint so that the leg would be held in this position and to make slight traction. Then to gradually straighten while the child remained on his back. At the end of two or three weeks, when the limb was straight, a fixation splint could be applied and the child allowed to get out into the open air. This was the method to pursue if suppuration and abscess had not set in.

Acute Uræmia, followed by Gangrenous Abscess of the Lung.

Dr. MCPHEDRAN gave the following history of a case. The patient, a man 58 years of age, had for sometime been failing in health, suffering from vertigo, frequency of micturition, constipation, disagreeable taste in the mouth, hard pulse, etc. He had a convulsion, sudden in its onset and severe in character. It was followed by prolonged coma. Albumen was present in large quantity in the urine. The second week after the attack elastic fibres were present in the expectoration. Signs of change in the lung were noted by physical examination. There were recurring attacks of hæmorrhage, and at three distinct periods the breath smelled gangrenous. Under treatment improvement took place, followed by recovery. The condition of the lung the writer believed to be due primarily to degenerative

changes in the pulmonary artery. Beside the hygienic treatment, diuretin was administered in 15 grain doses every four hours.

The Ophthalmometer.

Dr. R. A. REEFE read a paper in which he pointed out the great value of this instrument in ascertaining the presence of astigmatism and other refractive errors. He showed the superiority of this instrument over other appliances formerly used. By means of a photograph he demonstrated the parts of which it was composed.

A Case of Brain Tumour.

Dr. J. WEBSTER, of Kingston, read the notes of this case with an account of its removal. The interesting features were that the woman was admitted for insanity to the asylum, the symptoms being traceable to the presence of the tumour. The localization of the tumour was exactly made out by the appearance of paralysis of muscles of the upper limb. Owing to the weakness of the patient under the anæsthetic the operation was done at two sittings. The tumour was a small round-celled sarcoma, very vascular. Hernia cerebri followed and was pared off as it appeared and re-appeared.

Placenta with Hydatids.

Dr. A. BETHUNE, of Seaforth, related the history of a case. The woman's first labour was normal ; her second pregnancy had advanced to the sixth month when flowing began—a discharge of water, mucus, and blood About three weeks afterwards labour came on. The uterus was almost entirely filled with spongy, friable placenta, which was removed piecemeal. Several of the pores contained hydatids. The fœtus was dead and crushed flat. The woman made a good recovery.

Hernia of the Vermiform Appendix.

Dr. R. W. GARRATT, of Kingston, related the history. The condition occurred in a green-grocer who had much heavy lifting. After an unusually heavy lift, some five years previous, he discovered that there was a swelling in the left inguinal region, which gave him considerable pain. He wore a truss for some time, but without relief. It was thought to be omentum and an operation was finally decided upon. Upon cutting down on the tumour a bubble of gas was noticed issuing from it, followed by the exudation of about a drachm of stinking pus. The appendix was drawn down and removed. The patient made an excellent recovery.

A Case of Trans-peritoneal Nephrectomy.

Dr. AHERN, of Quebec, presented this paper. The operation was done for hydronephrosis. It began by tumour in the left side, which after a few weeks disappeared. It was accompanied by pain. The

tumour re-formed. The history of the case and the points of differential diagnosis were pointed out. A distinguishing point in the diagnosis was the palpation of a ribbon-like band over its surface—the descending colon. The tumour was removed by an anterior median incision. The condition was found to have been due to a congenital malformation of the ureter. These cases usually occurred on the right side. The essayist referred to the treatment of these cases by aspiration and by nephrectomy.

Some Indications for Electrolysis in Angioma and Goitre.

Dr. C. R. Dickson, of Toronto, pointed out in this paper that by treating angioma by this method the chances of disfigurement were much less than by other measures. Excision was often useless, the cautery was sometimes disappointing, and scarifications, applications and injections were not free from danger. Small, superficial angiomata called for the negative pole and mild currents. In the cavernous form destruction of tissue might be called for. Histories of cases were given showing the good results following this form of treatment.

Its application to goitre was also spoken of, 120 cases of which he had treated with gratifying success.

Some Proposed Changes in the Canadian Militia Medical Service.

Dr. Tobin, of Halifax, discussed this question. He said that while serving in the Northwest campaign he had urged on the Government the adoption of the departmental instead of the present regimental system. The speaker also recommended the establishment of bearer companies, for the relief of the wounded on the field and the attendance in field hospitals. Such a provision would increase the *morale* of the soldier, knowing that if he did fall in the fight he would not be allowed to die on the field without aid. The paper was discussed by Surgeon-Colonel O'Dwyer, principal medical officer of the Imperial forces in Canada, who gave his personal experience of the two systems. He approved of the departmental system.

Inter-provincial Registration.

The committee appointed at the last meeting of the Association to look into the question of inter-provincial registration expressed their regret that by the system which at present obtains, a graduate in medicine entitled to practice in one Province is not free to exercise his functions in all the Provinces in this large but sparsely settled Dominion, that this condition of things prevents the names of medical practitioners in this Dominion being placed on the British register, becoming thereby British practitioners. This latter is a boon which the council of Great Britain has more than once signified its willing-

ness to grant. To secure these ends it is considered most desirable that a uniform standard of medical education for the whole Dominion be established. In order to effect this purpose it is suggested that the Secretary be instructed to communicate with the various provincial councils before the next meeting, asking that each council discuss the position and if possible appoint one or more delegates to a Dominion committee for the purpose of adjusting a suitable curriculum to carry out the suggestion herein, and that such committee be requested to forward its findings to the provincial councils and to the Secretary of the Association before the next meeting.

Montreal was chosen as the next place of meeting.

Dr. James Thorburn, of Toronto, was appointed as the President for 1896.

The Secretary and Treasurer were re-appointed.

The delegates to the Association were most delightfully entertained by their Kingston *confrères*. The principal feature was a trip down to Alexandria Bay through the Thousand Islands, luncheon being served on board. Mrs. (Dr.) Fife Fowler gave an "At Home" to the members of the Association on the first evening. On the closing day the members visited the Rockwood Asylum and the Penitentiary, through which institutions they were kindly shown by Dr. Clarke and Dr. Lavell respectively.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, June 14th, 1895.

G. P. Girdwood, M.D., President, in the Chair.

Rare Form of Dislocation of the Hip.

Dr. H. S. Shaw exhibited this specimen and read the report, which will appear next month.

Carcinoma of the Rectum.

Dr. Armstrong related the clinical history as follows: Man 45 years of age. Disease first noticed in July, 1892; it was a pretty high cancer of the rectum. I removed it by Kraske's method, made an incision on the left side, separated the attachments of the rectum from the sacrum, turned it down and got a very free entrance into the region of the rectum; then introduced the sound into the urethra, which assisted me very much in separating the growth from the urethra, prostate, and base of the bladder. I found I could get the rectum down very nicely, so that I was enabled to remove the tissues well above and around the disease. There were a few enlarged glands about the sacrum, which I removed. Then I sutured the ends of the bowel together. In Kraske's operation the sphincters are not disturbed; we go in from the sacrum and divide the rectum about 1½ inches or 2 inches above the internal sphincter, then bring down the malignant disease, divide the rectum above that and suture the two ends together. This case, like most cases, did not unite by first intention. There was leakage. A large mass which will be shown to you developed from the fistula where I made the entrance from behind. It was very slow in closing and the fæcal discharges which came down for a long time was the cause of the fungoid growth which developed. The bowel, although three years have elapsed, only shows one or two small nodules in the neighbourhood of the growth. One year ago obstruction was so great that I did an inguinal colotomy. Of course this operation has been developed very much since 1892 and many improvements have been made. One of the most important is just now under discussion, and it looks very feasible; that is, to do a colotomy first (Schede does the colotomy afterwards). It seems to me it would be a good idea to do a colotomy first, establish an artificial anus, get the patient somewhat accustomed to the use of this artificial anus, get the lower rectum thoroughly cleaned out, and by thus rendering the field of operation aseptic, primary union of the cut ends may

be obtained, which it is believed lessens the liability to local recurrence.

Dr. JOHNSTON exhibited the specimen. At the autopsy a large fungoid papillomatous mass extended along the perineum and over the inner suface of the buttocks about the anus. The sacrum showed a deflection apparently corresponding to the point where it had been resected at the operation. There was a cancerous infiltration of the periosteum and of the anterior surface of the lower part of the sacrum, but no cancer involving the bone. There was no evidence of secondary growth outside of the rectum, either in the retro-peritoneal glands, liver or lungs. On slitting up the rectum, a cancerous ring was found constricting it at a point 2 inches above the anus. From this point the tissues of the lower part of pelvis show extensive cancerous infiltration. This tissue has broken down and shows numerous sinuses and fistulæ communicating with the fungating mass about the anus. There was intense phlegmonous inflammation of the perineum and scrotum, evidently derived from a perineal abscess which had opened into the urethra and led to urinary infiltration. The artificial anus appeared to be acting well. The lower part of the bowel contained some pus, and did not communicate with the bowel above the point of operation, but ended in a blind extremity.

Dr. JAS. BELL expressed himself as greatly surprised at one development of the autopsy, and that was the absence of enlarged glands in the abdomen. He was of the opinion that the glandular infection of the abdomen occurred with much greater frequency and much earlier than was generally supposed. In the past year he had had occasion to do inguinal colotomy in three patients suffering from cancer high up in the rectum—higher up than this was; and though there was very little disturbance of the general health in any of these cases, and not much obstruction, and the operation which he undertook was only preliminary to a more radical procedure, in each of them he was surprised to find the amount of glandular involvement, an amount which quite precluded the idea of undertaking any operation for the removal of the mass. Not only were the retro-peritoneal glands along the lymph vessels involved, but even those as high up as the sigmoid flexure. He abandoned the idea of removing the mass, because he could not claim it to be a rational operation to remove the primary mass, while knowing such an amount of cancer to be distributed throughout the lymphatic glands of the abdomen. In another patient, from whom he removed about four inches of the rectum, he dissected away a lot of glands from the hollow of the sacrum, and yet he could feel other glands beyond which he could not reach; that

patient died seven months after the operation. These cases made him look upon cancer of the rectum as much more unfavourable for operation than he had previously done, and it was quite a relief to find that, in some cases at least, cancer went on to death without involving the glands of the abdomen. Moreover, he thought that it was one very strong reason for doing an inguinal colotomy inasmuch as it enables one to determine the nature of the mass, a small portion of which only could be explored from the rectum.

Fibroid Pancreas.

Dr. BELL exhibited an enlarged and fibroid pancreas removed from the body of a girl 17 years of age.

The clinical history was briefly as follows: Some seven or eight years ago she had suffered from effusion into the right pleural cavity, without acute symptoms, and a year or two later had had a mild attack of jaundice. Since that time she had been delicate and her appetite had been irregular and fastidious. Early in May, 1895, the abdomen was found to be filled with fluid and a large quantity of ordinary ascitic fluid was removed by tapping. The peritoneal cavity rapidly refilled and was again evacuated by tapping about a week later. On the 18th of May the abdomen was tapped for the third time, and careful examination through the thin and relaxed abdominal walls failed to discover anything abnormal. The fluid withdrawn gave no clue to the condition when examined. After this tapping there was constant leakage from the needle puncture and the patient gradually sank and died on the 7th of June. At the autopsy, made by Dr. A. D. Stewart, of Richmond, the only abnormal condition discovered was the fibroid pancreas closely adherent posteriorly, and greatly constricting the portal vein by pressure. There was no peritonitis, and all the other organs were normal.

Dr. Bell attributed the mechanical compression of the portal vein, which was the direct cause of death, to an inflammatory condition—open pancreatitis—in which the contraction of the cicatricial tissue had produced this lesion, and mentioned a case in which a localized contraction of the jejunum had led to intestinal obstruction in a young man two years after a heavy fall upon his back while skating; also a similar localized condition of the superior vena cava.

Milk Sterilization.

Dr. BLACKADER read a paper on this subject which appeared last month.

The PRESIDENT thought the milk was too much blamed, that dirty bottles sometimes had much more to do with the large number of deaths. The quality of the milk in all our towns throughout Canada

was pretty good and one had only to turn up the bulletins of the public analyst at Ottawa and he would get the names of several hundred dealers in each town, with the quantity of fat, of albumenoids and water, and the average of these was very constant. The average milk in the Province of Quebec was rather rich in fats, it generally runs up between 4 and 5 per cent., and the total of the solids amounts to 13. This was higher than the published standards in England, which had only about 3 per cent. of fats.

The President asked if boracic acid or salicylic acid, which were useful in making milk antiseptic, were used, or whether any harmful results followed their use. He often found small doses of salicylic acid prove very efficacious in arresting these summer diarrhœas.

Dr. Kenneth Cameron made some remarks on the method employed for feeding infants at the Montreal Foundling and Infants' Nursery. This year all starchy foods have been given up and the modified milk as suggested by Rotch has been used, the different constituents being altered to suit the different cases. The formula employed was: Milk, 2 ounces; cream, $3\frac{1}{2}$ ounces; sugar of milk, $6\frac{3}{4}$ drachms; water, $9\frac{1}{2}$ ounces. This mixture is put into the feeding bottles, which are placed in the sterilizers and kept at a temperature of 170° F. for twenty minutes and then allowed to cool, when lime water is added in the proportion of two ounces to the pint. He had examined the milk as received from the dealer and had found that it varied from day to day in the percentage of cream and the specific gravity—neither was the milk sterile as sometimes observed from the condition of the cans. Until we can know the different proportions of the elements in milk we will not be able to feed children with any sort of scientific exactitude. He felt that if dairies were conducted on the strictest aseptic principles much of the sterilizing and pasteurizing might be done away with.

Dr. T. W. Mills stated that recent investigations had shown that milk was a most complex fluid, and that it must be remembered that it thus formed a mixed meal, different parts of which might disagree with different children. He did not think that sterilization was going to solve the question of milk feeding.

Stated Meeting, June 28th, 1895.

G. P. Girdwood, M.D., President, in the Chair.

Gangrenous Drug Eruption.

Dr. Shepherd showed a man who was the subject of a remarkable eruption, supposed to be due to sodium salicylate. The eruption was now passing away, but large granulating patches were seen on the

arms and each shoulder, which were due to sloughing of the skin. Dr. Shepherd said that the fact that these grave effects were due to the drug might be disputed and that the lesions might be attributed to peliosis rheumatica, as it was well recognized that occasionally in this disease gangrene of the skin supervened. The history of the case is as follows: A. B., æt. 30, came to the hospital on May 8, 1895, suffering from a synovitis of the left knee due to traumatism. The knee was treated with cold applications and apparently improved. Three days later the right knee became swollen, hot and painful; later the ankle-joints were affected similarly, and also the elbows and wrists. Thinking now the case was one of rheumatism, and whilst waiting the patient's transference to the medical wards, sodium salicylate in gr. xx. doses was ordered. Next day on visiting the ward the man's legs were found to be covered with a well-marked urticarious eruption; supposing this to be due to the drug it was immediately stopped, the man having only taken three twenty-grain doses. Next day the face and arms were covered with a similar eruption and spots were seen in the mouth, soft palate, etc. The uvula was much swollen and the larynx was also affected and the patient had great difficulty in breathing and was almost voiceless. Now the character of the eruption began to change, the wheals on the legs disappeared and ceased itching, but in their place were ecchymosed patches with some degree of infiltration. Over the loins, buttocks and shoulders these spots were of large size and ran together; on the arms and shoulders the spots were the size of the palm of one's hand and had a red and angry looking areola. The temperature rose to $102\frac{1}{5}^{\circ}$; the face was so swollen he could not see out of his eyes, and the mouth had gangrenous spots in it. The throat was so inflamed he could not swallow. On the legs, back and buttocks the ecchymosed spots began to fade and go through the stages of a bruise, but on the shoulders they became blacker and blebs appeared on them. Soon a well marked line of demarcation surrounded the patch and it began to separate from the surrounding skin. After some three weeks his condition began to improve, the throat became less inflamed, the voice less husky, breathing became less difficult and the gangrenous skin came away, leaving the condition the patient presented as shown to the Society. A week before the sloughs separated patient had another slight urticarious rash on the abdomen which soon disappeared. This latter outbreak made Dr. Shepherd think that after all the drug was not the cause of the rash and that it might be a case of peliosis rheumatica, but against this was the fact that the joint lesions preceded the ecchymosis and that the first manifestation was urticaria.

Dr. Shepherd said that sodium salicylate was well known to produce urticaria, sometimes with ecchymosis, but the occurrence of gangrene in these cases had not been heretofore noted. It is well known that the acute inflammations of the skin, due to quinine poisoning, sometimes go on to gangrene, but that sodium salicylate caused this result was not known to him.

Dr. F. W. Campbell thought the eruption was due to the drug. Although a drachm of salicylate of soda seemed a small quantity to work such mischief, there were idiosyncracies where drugs in small doses had strong effects in certain individuals. Five grains of calomel sometimes produced salivation. He was not inclined to attribute it to any peculiar rheumatic tendency in this individual.

Dr. Shepherd said he did not think the smallness of the dose had much to do with the effect of the drug when the patient was the subject of such idiosyncrasies. He had seen half a grain of quinine cause an acute scarlatiniferous rash of the whole surface of the body, followed by complete desquamation, and hair washes containing quinine have been known to cause acute dermatitis. The man had an operation performed some years before for severe pain. It was thought he had a stone in his kidney, so Dr. Shepherd cut down, but found nothing. The man was, however, cured of his pain and has remained cured. When the man was admitted to the hospital he was in ordinary good health and had been so previously.

Rupture of the Intestine.

Dr. Bell presented a specimen showing rupture of the small intestine. The patient, a strong, healthy man aged 42, while working in a saw-mill was struck on the right side of the abdomen by a board as it flew from the saw. The accident happened at 4 p.m. on Friday, the 21st of June. He did not feel badly for a few minutes and continued his work, but in about fifteen minutes he was seized with such severe pain that he could hardly get to his home or get to bed when he got there. He was seen by a physician, who ordered him two purgative pills. These were repeated at midnight and again the next morning (six in all) and several enemata, but neither pus nor fæcal matter had passed from the time of the injury. He began vomiting that night. The obstructive symptoms continued and he came to the hospital on Tuesday, the 25th of June, about mid-day, nearly four days after the injury. He was then in a condition of advanced peritonitis; the vomiting, liquid, sour and foul-smelling; the abdomen distended and tender; the face sunken and the skin dull and livid. No physical signs except that a mass obstructed the right internal abdominal ring. Pulse 124, temperature 99° F. Operation was advised as a last re-

sort. On opening the abdomen to the right of the right rectus muscle and down to the internal ring, the frontal peritoneum was found to be gangrenous, the intestine dark and deeply congested; great matting together of coils of small intestine in the pelvis with thick flakes of lymph. The portion of gut presented showed two large rents out of which liquid fæces flowed. A large quantity of similar liquid fæcal matter was walled up in the pelvis (about a pint and a half at least). This portion of intestine was resected and the ends united by Murphy's button. The patient lived about ten hours after operation.

Dr. Bell referred to a similar case in which he had removed the specimen post-mortem, the rupture having been caused by a kick in the abdomen (by a policeman). In this case the patient lived only fourteen hours after receiving the blow.

Dr. Bell also exhibited a mass of omentum which he had removed from the sac of an umbilical hernia. The mass weighed 18½ oz. and was adherent in many places to the sac.

Fracture of Tibia.

Dr. J. Alex. Hutchinson related the following history: Mrs. G., aged 60 years, French-Canadian, was admitted to the Montreal General Hospital, on May 27, 1895, suffering from fracture of the leg. On May 16th she fell while walking in her house and remained unconscious for twenty-four hours. On recovery she had no power over the left leg below the knee. Sinapisms were applied to the back of the leg and later she was brought to the hospital. Has always been a strong, healthy woman; never had epilepsy; at times used liquor to excess. During her residence in hospital she remained in a semi-comatose condition; suffered little pain in injured limb, which could be freely examined; had to be tied in bed.

On examination a well-marked deformity in left leg was seen, having the appearance of a backward dislocation of the knee. Fracture of the tibia close to the knee-joint and of the fibula in the upper third was made out. Reduction was not successful, and as the patient's general condition was hopeless a comfortable splint was applied. Owing to a large sacral decubitus the patient was placed on a water bed till she died on May 27th.

Since examining the bones after death further efforts have been made to find a satisfactory cause, but the relatives assure me the only injury received was due to a fall to the floor from the erect position.

Dr. E. P. Williams reported the pathological condition: The tuberosities of the tibia were separated from the shaft by a fracture passing from above the anterior tubercle to a lower level on the pos-

terior surface and separated from each other by a central fracture passing through the spine to meet the first. The articular surfaces of the tuberosities were opposed to the extreme posterior articular portions of the condyles of the femur when the leg was extended, and the sharp anterior point of the shaft represented by the tubercle had forced its way into the joint between the tuberosities, and by motion had grooved the cartilage of the internal condyle from before backwards. Between and around the fractured bones was a mass of fibrous callus with considerable calcification, but no bony union. Many of the ligaments were partly calcified. At one point between the external tuberosity and the spine, and communicating with the joint, was a cavity about the size of a hazelnut, with smooth, thickened fibrous walls filled with soft. red blood-clot. There was no fracture of the fibula. The popliteal and larger arteries were calcified and the valves of the heart and the aorta were atheromatous.

Many cases of transverse fracture below the tuberosities with splitting of the upper fragment are reported due to a fall on the feet from a height.

Two Cases of Volvulus.

Dr. R. C. KIRKPATRICK read a paper on this subject, which will appear in a later number.

Dr. F. J. SHEPHERD said he was not at all convinced that these were cases of volvulus. In absence of any other explanation he fancied that this diagnosis had been made. He had himself opened the abdomen in several cases where there was collapsed bowel with apparent constriction, and although the patients recovered after operation, he never was satisfied that the cases were due to twisting of the bowel. Some of these cases were difficult to explain. It was easy enough to understand a volvulus of the large bowel, but a volvulus of the small bowel was not so easy to imagine. Perhaps the disturbance produced by the opening of the abdomen and searching for the cause of the trouble might have been sufficient to release the twist in the intestine, but this did not seem likely to be the case in those patients whose symptoms of obstruction were very severe before operation.

Dr. G. E. ARMSTRONG had been present at these operations, and thought that if it had not been for Dr. Kirkpatrick's prompt action serious trouble might have arisen. Opening the abdomen was the correct thing to do in these cases. Of course, as Dr. Shepherd said, it was hard to be positive that it was volvulus. He had opened the abdomen frequently, found a constriction, then distention, and then another constriction, but could not find the cause of the constriction.

In one case, as the bowel was brought out, it seemed to twist round very naturally, and its appearance seemed to suggest a twist on its own axis rather than anything else.

Dr. JOHNSTON referred to the fact that in cases of intestinal obstruction death might occur very early. He had in one case been called upon to perform a medico-legal autopsy upon an old woman supposed to have died of irritant poisoning, who was not known to be seriously ill and had been at work until within a few hours of her death. The autopsy showed a cancerous stenosis of the rectum, with great distension of both small and large bowels. In another case, that of a young man, death occurred within twelve hours of the onset of the symptoms—vomiting, constipation and abdominal parietes, which appeared due to indigestion. At the autopsy the point where the distension commenced could be readily made out in the small intestine, but no adhesion or other organic disease likely to cause obstruction could be made out.

A Case of Ichthyosis Treated by Thyroid Extract.

Dr. W. E, DEEKS reported this case. (See page 114 of the August number.)

Dr. F. J. SHEPHERD asked how long this condition of the skin had lasted and if it was a congenital affection. Did the girl perspire ? Ichthyosis is of course a congenital affection, or at any rate comes on soon after birth. If this case was cured by thyroid extract it is certainly remarkable, and another triumph is added to the many now claimed for this wonderful remedy. Cure of ichthyosis is almost unknown, though temporary amelioration may always be obtained by the daily use of soap tinctures followed by the rubbing in of any fatty matter. The case is well worth reporting and following up, and Dr. Deeks should, if possible, bring her before the Society, or report the progress of the case after several months have elapsed.

Gas Asphyxiation Treated by Inhalation of Oxygen.

The PRESIDENT communicated a report of this case by Dr. J. Shillington, of Ottawa (will be published), and stated that the principal point of interest was in the prompt success following the administration of oxygen when other means were failing. An interesting point was the face becoming black during the inhalation, which he supposed was due to the increased quantity of carbon dioxide formed in the presence of oxygen and circulating in the blood.

Dr. T. W. MILLS did not agree with the explanation offered by the President. Some years before, he had suggested the method of treatment used by Dr. Shillington, but experiments upon animals had

shown oxygen to be no more efficient than air in cases of asphyxiation.

Dr. S. R. McKenzie related the account of a case of an old woman asphyxiated by illuminating gas, who was brought to the Montreal General Hospital in a comatose condition. The patient did not react to the Faradic current. After the forced inhalation of many gallons of oxygen the patient revived in about four hours. About a year previously, Dr. McKenzie stated, a much more favourable case had been lost, a young man who died after twelve hours continuous treatment by artificial respiration and stimulants. He had had no oxygen to give him, but he now kept over one hundred gallons and applied it with a nitrous oxide inhaling apparatus.

DISTRICT OF ST. FRANCIS MEDICAL ASSOCIATION.

On the 8th of July the above named Association held its regular meeting at Sherbrooke, P. Q. The following gentlemen were present: Drs. N. A. Dessault, I. Fregeau, F. Pare, J A. M. Elie, W A. Farwell, F. J. Austin, A. N. Worthington, P. Pelletier, J. F. Rioux, J. O. Camirand, Sherbrooke; A. G. H. Beique, W. W. Chalmers, Magog; Thomas LaRue, W. A. Stenning, L. C. Bachand, C. N. Stevenson, Coaticook; W. H. Cooke, D'Israeli; R. A. D. King, Compton, and C. J. Edgar, North Hatley. The President, R. A. D. King, was in the chair. The meeting was opened at 2.30 p.m.

After some discussion the report of the proceedings of the last meeting was adopted on motion by Dr. Austin, seconded by Dr. Stenning.

Dr. C. J. Edgar, North Hatley, then read some interesting and instructive notes on two cases met with in practice. The first case illustrating the occasional dangers of intra-uterine injections of mercuric chloride, and indicating the precautions to be used in this method of treatment. The second case is one of fracture of the body of the scapula, due solely to muscular contraction, this being only the second or third case of the kind mentioned in our medical works.

Dr. A. G. H. Beique, Magog, communicated some very useful notes on the use of "Nuclein," a new remedy recently introduced into practice. Dr. Beique is extremely well satisfied with the results already obtained through this preparation, and although his experience is necessarily very limited in its use, he does not hesitate to recommend it to his fellow-practitioners. He will continue the use of "Nuclein," and will give the results of his experience at the next meeting of the Association.

Dr. L. C. Bachand, Coaticook, read an instructive paper on the treatment of uterine diseases by electricity. Amenorrhœa, dysmenorrhœa, endometritis, fibroids, the doctor says, are more amenable to treatment by this method than by any other. In his opinion he has obtained far greater success by electricity than by the curette.

On motion of Dr. C. N. Stevenson, seconded by Dr. Rioux, a vote of thanks was tendered Drs. Edgar, Beique and Bachand for their able and instructive papers.

Dr. F. Pare made a few remarks concerning the resolutions passed in September, 1894, and which he had been requested to submit to the Provincial Board at its nearest meeting. He was greatly pleased

to be able to state that the suggestions of our Association had been extremely well received by the said board, and that our wishes would in all likelihood be acceded to. The doctor resumed his seat amid the applause of the members.

A question of unprofessional conduct was again brought up. After a few remarks by several members the question was ruled out of order by the President, all such matters having to be submitted to the Council of the Association.

It was moved by Dr. P. Pelletier, seconded by Dr. A. G. H. Beique, "that it is the wish of this Association that fees due medical men for attending coroner's inquests be in the future paid through the prothonotary of the district, and that the Secretary be instructed to write to the Attorney-General to that effect."

It was moved by Drs. C. N. Stevenson and C. J. Edgar, seconded by Drs. W. A. Stenning and W. A. Farwell, "that it is the desire of the Medical Asociation of the District of St. Francis that Drs. F. J. Austin, L. C. Bachand and J. O. Camirand be elected governors of the College of Physicians and Surgeons of the Province of Quebec to represent our district, and that the Secretary of this Association be instructed to send a copy of this resolution to the registrar of the college, that the same may be submitted to the board at its first meeting."

It was moved by Dr. L. Bachand and seconded by Dr. J. A. M. Elie, "that in the future it would be advisable that, in rotation, a new member should be elected to the board every three years."

Dr. Beique moved, seconded by Dr. Pelletier, that the resolutions passed by this Association in September last asking the Board of Governors to allow each district to elect its own representatives to the said board be again submitted to the Provincial Board with the request that it be seriously considered.

Drs. W. A. Farwell, R. A. D. King, A. N. Worthington, A. G. H. Beique and F. Pare will read papers at the next meeting of the Association to be held in Sherbrooke in the early part of September next.

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CANADIAN MEDICAL ASSOCIATION.

The thirty-ninth meeting of this Association was held in Kingston, Ont., on the 28th, 29th and 30th August, and was considered to be more than ordinarily successful. All the Provinces of the Dominion, with the exception of Manitoba and British Columbia, were well represented. Some one hundred and thirty members registered in the Treasurer's book. The papers were numerous and well selected. The President's address was admirable, and, notwithstanding his eighty-one years, delivered in a voice strong enough to fill the convocation hall of Queen's University, where the general meetings were held. The addresses on Surgery and Medicine fully sustained the well established reputations of the gentlemen who delivered them. There was a general feeling throughout, however, that the majority of the papers presented were too lengthy, occupying in many cases nearly an hour in the reading. This is a constant source of complaint and should be remedied if possible. A good rule to establish would be, that no address should occupy a longer time than forty minutes, and no paper a longer time than twenty minutes. The papers should be short, crisp and suggestive, being intended really to form a text for discussion. After all, the discussions constitute the most interesting and instructive element in these meetings, giving every one an opportunity of taking part. The plan already adopted of selecting special subjects for discussion is an admirable one, although the impression gets abroad that those only mentioned on the programme are expected to speak ; whereas all should be invited to take part.

The social events in connection with this meeting of the Assocation were well planned and admirably carried out. The reception given by Dr. and Mrs. Fowler on the afternoon of the first day was largely attended and thoroughly enjoyed. The excursion through the Thou-

sand Islands, which occupied the whole afternoon and part of the evening of the second day, was, to say the least, a delightful outing. The profession of Kingston deserve the thanks of the Association for their lavish hospitality. Under the circumstances it would be hardly fair to criticise, but we cannot refrain from expressing some regret that the too limited time of these meetings is often seriously encroached upon by entertainments furnished through the kindness of the local profession. We would suggest that all such be deferred in future until the afternoon or evening of the third or last day of meeting. This arrangement would, at any rate, meet the wishes of the great majority, who come for work only.

The nominating committee, which was fully representative, after some discussion, selected Montreal as the next place of meeting. It was really Toronto's turn, but the gentlemen present who spoke for the profession in that city waived their claim, preferring, for special reasons, to entertain the Association the year following. Dr. Thorburn, a Toronto member, was, however, recommended for the presidency. The meetings held in this city have generally proved to be fairly successful, and we have no reason to think that the one forthcoming will be any exception to the rule.

TESTIMONIAL TO SIR JOSEPH LISTER.

In the theatre of King's College Hospital, Sir Joseph Lister was last month, presented with a portrait of himself, subscribed for by a large number of his professional friends, colleagues and pupils as a mark of their personal esteem. Dr. Playfair, who presided, laid special emphasis on the testimonial being a purely personal one, in no ways to be considered as a recognition of his great scientific attainments, nor even of his position as one of the greatest benefactors of humanity the world has ever known.

At some future time that position and the benefits Sir Joseph had conferred on all the nations of the earth would be fittingly acknowledged by a memorial not national merely, but international. The presentation was made by Sir John Eric Erichsen, Bart., president of University College, London, one of Sir Joseph Lister's early instructors in Surgery, before a crowded audience of medical gentlemen from all parts of England and Scotland.

Sir John dwelt at some length upon the extraordinary progress of surgery within the past twenty-five or thirty years—a progress so great as to amount to a revolution—a change due mainly, if not entirely, to the introduction of antiseptic surgery and its adoption

and appreciation by the profession generally, not only of this country, but throughout the civilized world. That boon constituted Sir Joseph Lister one of the greatest benefactors of mankind, who by his genius and untiring research had, by his discovery of antisepsis, rendered surgery so simple as to be almost painless, and the treatment of wounds so safe that mortality had become well nigh extinguished.

While giving so much praise to the antiseptic method, he had no wish to undervalue anæsthetics, but during the twenty years between the introduction of anæsthetics and that of antiseptics the mortality had increased. It was not too much to say that what John Hunter did at the end of the eighteenth century, Joseph Lister had done at the end of the nineteenth. His discovery placed him on a level with the great philosophers and men of science of the past ages and the present day ; nor was it, perhaps, unbecoming that he himself, who had been Sir Joseph's first teacher in practical surgery should have been elected to make this presentation to his dear friend and former pupil. Though they had once stood in the relation of teacher and taught, that position had long since been reversed, and he was proud to say that for the past twenty years he had been content to sit at the feet of his former pupil.

The portrait, which is the work of Mr. J. H. Lorimer, a Scottish artist, and a highly successful likeness, was then unveiled amid renewed cheering.

Sir Joseph Lister, on rising to reply, was unable to proceed for some time in consequence of the protracted applause. He said he felt almost overwhelmed by Sir John Erichsen's generous, and he feared, flattering words, and by the exceedingly kind reception which had been given them. He proceeded at considerable length to give the extremely interesting narrative of his researches and experiments at Edinburgh, Glasgow and London, giving the account of his discovery and application of antiseptic treatment and of his continuous efforts to bring it to a state of greater and still greater simplicity. In conclusion, he thanked the gentlemen who had taken part in getting up his testimonial and also the artist. It would be extreme affectation, he said, to deny that he was greatly gratified by the presence of so many of his old friends which was a proof to him that his efforts had not been altogether in vain.

The nineteenth annual meeting of the American Dermatological Society will be held in the Windsor Hotel in this city on the 17th, 18th and 19th inst. The session will be opened with an address by the President, Dr. Sherwell, of Brooklyn, after which the following

papers are announced as to be read: "Angiokeratoma of the Scrotum," "Raynaud's Disease of the Ears," report of cases by Dr. J. A. Fordyce; "Two cases of Hydroa Vacciniforme," by Dr. J. E. Graham; "Two cases of Bromide Eruption," by Dr. G. T. Jackson. At 3 p.m. there is to be a general discussion on "The Value and Limits of Usefulness of Electrolysis in Dermatology." This will be followed by a paper entitled "Dermatological Notes," by Dr. W. A. Hardaway, and another on "The Epitrichial layer of the Epidermis aud its relationship to Ichthyosis Congenita." On the 18th the session will be opened at 10.30 a.m. with a paper on "A Remarkable Drug Eruption," by Dr. F. J. Shepherd, to be followed with "A hitherto undescribed sequel of Non-Parasitic Sycosis," by Dr. J. A. Cantrell and Dr. J. F Schamberg; "The Infected Scratch and its relations to Impetigo and Ecthyma," by Dr. H. G. Klotz; "A contribution to the study of Mycetoma," by Dr. J. N. Hyde; "An unusual Bromide of Potash Eruption in a Baby," by Dr. G. T Elliot; "An Etiological Puzzle," by Dr. J. C. White, and "Studies on Dermatological Subjects," by Dr. A. R. Robinson. On the third day the session will open at 9.30 a.m. and the following papers are announced: "A unique case of Agminate Folliculitis of Parasitic origin," by Dr. M. B. Hartzell; "Note on Antiparasitic treatment of Eczema," by Dr. J. Zeisler; "The treatment of Erysipelas based upon a second series of fifty cases," by Dr. C. W. Allen; "Notes on Drug Eruptions," by Dr. J. A. Fordyce; 'A further study of Alopecia Prematura," by Dr. G. T. Elliot; "The prevalence of Germ Dermatoses," by Dr. J. White, "Symbiosis of Cutaneous Eruptions," by Dr. J. Zeisler; "Sleep in its relation to Diseases of the Skin," by Dr. L. D. Bulkley; "Exhibition of Photographs of unusual cases," by Dr. H. W. Stelwagon; "Urticaria Pigmentosa," by Dr. P. A. Morrow; "Note on the Elastic Circular Bandage," by Dr. G. H. Fox.

—Dr. F. F. Wesbrook has been appointed Professor of Bacteriology at the University of Minnesota.

We have been requested to inform our readers that the Chair of Pathology in the Faculty of Jefferson Medical College in Philadelphia is vacant.

—The *Dominion Medical Monthly* and *Ontario Medical Journal* have amalgamated forming one publication under the management of a very strong and able editorial board.

—Piano playing and the hours devoted to practising are said to cause chlorosis and the various forms of neurasthenia in young girls. How many of the victims who are compelled to listen become similarly affected?

Obituary.

DR. E. P. WILLIAMS.

It is with feelings of deep regret that we have to announce the death of Dr. Edward Parmelee Williams, which occurred on the 8th inst. For some time past Dr. Williams' health had not been good, and friends had advised him to take a holiday and change of air, but he felt that for this summer his duties at the Montreal General Hospital demanded his remaining in town. Symptoms of septicæmia, of which the origin was obscure, made their appearance only a few days previous to his death and his strength rapidly failed. Dr. Williams was born in Ottawa in 1867; he received his education at the Collegiate Institute in that city, and commenced the study of medicine in McGill University in 1883, graduating in due course in 1887. He proved himself a good student, enthusiastic in his studies, and very popular among his classmates. After graduation he acted for a time as local surgeon to the Canadian Pacific Railway at Algoma, a position which he filled with credit. In the spring of 1889 he commenced practice in Montreal. In 1892 he was appointed assistant curator of the medical museum in McGill University, where he did much good work. In connection with this appointment he had, during the last two years, been steadily engaged in the compilation of a full and descriptive catalogue of the valuable, and, in many respects, unique collection of bone specimens in the museum. This catalogue which he had almost completed will, we trust, see the light in the not distant future. Very recently he received the additional appointments of assistant demonstrator of pathology in the University, and assistant pathologist to the General Hospital. At the time of his death he also held the appointments of attending physician to the Mackay Institute, and to the Montreal Foundling and Infant Nursery. During his few years of practice he contributed several papers to the Montreal Clinical Society and to the Montreal Medico-Chirurgical Society. In the forthcoming number of the *Journal of Pathology* there will appear an important paper, written by him in collaboration with Dr. Kenneth Cameron, upon several cases of infection by the Bacillus Pyocyaneus. These are the first recorded in America and are among the first six upon record. The more popular facts in connection with their investigations were contained in a paper contributed by the joint workers to the American Public Health Association, at its meeting in Montreal last year upon "Infection by the Bacillus Pyocyaneus as a cause of Infantile Mortality." During his short residence in this city he made many

warm friends, who deeply mourn the sad fate which thus cuts short at the outset a promising career.

DR. BRISTOWE.

The death of Dr. Bristowe removes a distinguished physician of the first rank, and one who had a close professional affiliation with Canadians. His text-book was a great favourite with students and practitioners, and for so many years St. Thomas's was the hospital in London chiefly frequented by graduates of our schools. In the thirty-two years which he served as full physician scores of our young men have been benefited by his instruction and inspired by his painstaking devotion to the routine of ward work. When my class-mate, Dick Zimmerman, became Dr. Bristowe's house physician in 1873 I had frequent opportunities of making rounds with him. Anxiety that a student should gather something from each case was a conspicuous feature in his teaching. There was no hasty snap diagnosis, but in a doubtful case judgment was deferred until further study had cleared obscurities. When he did not know he frankly said so. He was often slow in accepting the sharp "finds" of house physicians. No man was ever more ready to acknowledge his mistakes. I remember at a visit to St. Thomas's, in the eighties, I think, to have seen a remarkable case of hysterical peritonitis, in which when previously in the ward he had made an erroneous diagnosis. After one of my Goulstonian Lectures in 1885, in which I had described cases of endocarditis with protracted intermittent fever, which had been attributed to malaria, Dr. Bristows came up and said that he had fallen into this error in a remarkable case which he had reported. I mention these circumstances to show the attitude of his mind—open, frank, candid and honourable.

In no respect, perhaps, was his teaching of greater value than in therapeutics. He was one of those whose skepticism about the doubtful was only equalled by his faith in the assured. In the drugs which we all must use, the trusty friends, the faithful few, he had implicit confidence, but to the countless candidates for favour which the laboratories turn out his attitude was that of a Pyrrhonist—he suspended judgment and would not harbour unwarranted opinions.

W. Osler.

Dr. Brakenridge, the brother of Jas. W. Brakenridge, Esq., B.C.L., the acting secretary of McGill College, died recently at Edinburgh, Scotland. The deceased was a well-known practitioner there, an examiner in medicine for the united colleges and attending physician to the Royal Infirmary.

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Original Communications.

SOME TUMOURS OF THE INGUINAL REGION SIMULATING HERNIA.*

By FRANCIS J. SHEPHERD, M.D.

Professor of Anatomy and Lecturer on Operative Surgery in McGill University: Surgeon to the Montreal General Hospital.

The tumours to which reference will be made in this paper are not glandular enlargements or new growths, but tumours caused by the incomplete obliteration of the processus vaginalis, due to an arrest of development, resulting in a connection between the peritoneal cavity and the unobliterated process. This persistent funicular process may contain omentum or simply fluid, the opening of communication being too small for the passage of bowel.

I might remind you that the tubular process of peritoneum which descends with the testicle into the scrotum is freely continuous with the general peritoneal cavity up to the later months of fœtal life. At birth the tunica vaginalis enveloping the testicle is all that normally remains of this tubular process, the obliteration first taking place at two points, viz., (1) at the internal ring, and (2) a little above the epididymis; now we have a closed tube and the sac of the tunica vaginalis. The tube shrinks into a fibrous cord and the serous sac enveloping the testicle remains as the tunica vaginalis. Occasionally the tubular process of peritoneum closes only at the lower point and a funicular process of peritoneum remains lying on the cord and continuous with the peritoneal cavity at the internal ring; in such cases bowel may be contained in the process, and this is one form of congenital hernia. But the cases of which I wish to speak are those where the closure at the internal ring commences but the obliteration is not completed. A small opening may be left, too small to admit bowel, but large

* Read by title at the meeting of the Canadian Medical Association, August 28, 1895.

enough to allow omentum to pass, or the opening or openings may be so minute as only to allow fluid to come through by drops. These cases are always puzzling. A man presents himself with a tumour in the groin, having a history of reducibility on lying down, but of recurrence on moving about. Sometimes the tumour is tender to the touch, and handling it causes nausea and other sensations. On trying to reduce it one finds that this is not possible. In one of the cases related below it seemed as if the young man had a third testicle on the left side. The lump was tender on pressure, non-fluctuating, and squeezing it gave the same sensation as compression of the testicle; yet he said that this tumour never was present in the morning on getting up and that after moving about for some hours it reappeared. On cutting down on the tumour a funicular process of peritoneum was found connected with the general peritoneal cavity through the internal ring by a hollow, stalk-like process, and the communication between the sac and the peritoneum was so small that fluid could only be squeezed through by drops; hence the impossibility of reduction and the reason of the gradual formation of the tumour on going about. In another case the same condition existed in a female child in connection with the round ligament. The funicular process of peritoneum (the canal of Nuck) which accompanies the round ligament into the inguinal canal had never been obliterated. There was a largish tumour, very tender, which disappeared after the child had been lying down for some time, but always reappeared on moving about. Here the same condition was found, a sac with a stalk-like process connecting it with the peritoneal cavity, the opening being so small as to be almost invisible. The shape of the sac was very like a Florence flask.

In cases where the opening is larger omentum may be found in the sac as well as fluid. Such a case is reported below, where a small piece of omentum was attached to the bottom of the sac and where the patient had worn a truss for years with great discomfort and had frequent attacks of pain, vomiting and purging. When the omentum and sac were removed these all disappeared. It is not uncommon to find in young male infants a swelling in the groin which gives the mother considerable uneasiness. This usually comes on suddenly, is of considerable size, may be tender on pressure, but it is fluctuating and transmits light. In such cases the obliteration of the sac at the internal ring, I take it, has not been sufficiently solid, and during the strain of crying perhaps it has given way sufficiently to allow peritoneal fluid to percolate through into the yet unobliterated tube of peritoneum. In fact, a funicular process is thus sometimes established. These cases need excite no alarm and usually get well if left alone.

If the fluid does not disappear tapping may be resorted to, and if this does not do the sac can be dissected out. Encysted hydroceles of the cord often originate, in this way the upper opening again closing—but of course, as a rule, their growth is slow and is due to the secretions from the unobliterated tubular portion of peritoneum between the internal ring and epididymis of the testicle.

In not a few of these cases of persistence of the funicular process there is also present an infantile sac which may or may not contain bowel. This sac is also congenital, as shown by its close connection with the spermatic cord, and it is situated behind the funicular process. I have operated on several such cases, but always for the radical cure of hernia. On cutting down one first reaches a sac which may contain fluid, as does a hydrocele sac, and bulging into this is a second sac which contains the enterocele. In such cases care must be exercised not to inadvertently cut the vas deferens, which above at the neck of the sac is always internal and behind, but below, may cross over the fundus of the sac, and so run the risk of being wounded.

I have seen many cases of these fluid tumours treated by a truss in the belief that a hernia existed. If the truss be put on in the morning before the fluid has re-accumulated a cure may result, but in other cases the fluid accumulates in spite of the truss and causes much pain.

Case I.—*Hernia of omentum with the funicular process—Recurrent attacks of pain—Operation—Cure.*

H. L., æt. 22, a tall, strong, healthy-looking young man, was sent to me for radical cure of hernia on March 26th, 1896, with the following history: In March, 1887, following exposure to cold, he was seized with severe pains in the left inguinal region, which after some time extended to the lower zone of the abdomen. This pain was accompanied by severe purging, the stools being very watery. Soon after he noticed a swelling in the left groin; this swelling at times disappeared, but always returned when lying down, especially at night. There has always been a dull, aching pain in the left groin since he first noticed the lump. Since the first attack of pain and purging in 1887 he has often been laid up with similar attacks, but none so severe as the first. Sometimes these attacks last two or three days, sometimes two weeks. Since the first week in January he has dragging pains in his groin, but has not noticed any swelling. Wears a truss. On examining him I found some thickening about the left cord in the inguinal canal and some what beyond it; there was also a slight varicocele. Nothing like a hernia to be felt. He says the dragging pains are now constant in inguinal region and lower part of

the abdomen and that he has almost continual nausea. He insisted on me cutting down and seeing what the matter was, so on March 29th, having prepared patient as if for a radical cure of hernia, I cut down over the thickening in left inguinal canal and found a thin sac with a narrow neck continuous with the internal ring and the peritoneal cavity. In this sac was a small piece of omentum tightly grasped by the internal ring and attached to the lower end of the sac, which as it emerged from the canal was somewhat large, the whole being the shape of a Florence flask. The lower part of the sac was closely adherent to the tunica vaginalis. Closely adherent to the posterior surface of this sac was the cord, which was spread out considerably, the vas deferens being some distance away and internal to the vessels. The sac was opened, the omentum tied off and the sac closed by catgut ligature and cut off below this. As the external ring was rather large its columns were brought together with two strong catgut sutures and the omentum sutured with horse-hair. No drain used. The patient recovered rapidly, the wound healing by first intention. Since then I have heard from him and he says he has now great comfort, no more pain or nausea, and he feels like a different man. This was no doubt a case of unobliterated funicular process into which omentum has been forced during his first attack of colic, and this dragging on the omentum accounted for all the pains and nausea he had suffered from for years.

Case II.—*Swelling in left inguinal region and scrotum simulating hernia—Operation—Cure.*

Thos. H., æt. 21, was admitted into hospital May 16th, 1895, complaining of a swelling in the left groin and scrotum, which at times pained him severely.

History.—In December, 1894, following a strain, patient perceived a swelling descending into the left side of the scrotum about the size of a pigeon's egg; he had severe pains in the groin and back. These pains disappeared and he returned to work and found that whenever he put forward the left leg the pain returned, while at rest the pain disappeared. In the morning the swelling would have all disappeared. At first the swelling disappeared entirely for a week, then returned when he went about and disappeared slowly on lying down—that is, he went to bed with the swelling well marked and on waking in the morning it had disappeared; on rising it took some hours before the swelling reappeared and was its proper size. After a time the swelling ceased to pain him, and it was not until he began to play football in March last the pain returned severely and he consulted a doctor who told him it was probably a rupture. He tried to reduce it, but

could not, and ordered him a suspensory bandage which relieved the pain. He again played football and again the pain returned, so he determined to enter hospital for operation.

On examination I found on left side of scrotum a couple of inches above the epididymis and reaching up to the inguinal canal a tense, hard swelling the size of a large olive. This was very tender and felt like a third testicle. The patient said on pressing it firmly all the sensations of pressing a testicle were produced. The external ring could be felt, but nothing but the cord was in it. No fluctuation could be felt No impulse on coughing and no vomiting. He was put to bed and next day no trace of the swelling could be found, nor could it be made to reappear by coughing or straining or moving about. The boy then for the first time informed me that the swelling would not come on for some hours after he had been at work, and was only fully developed by the afternoon. I immediately concluded we had to deal with a funicular sac with a small opening, through which fluid slowly percolated.

On May 17th I cut down and found a flask-shaped sac attached below to the tunica vaginalis, which over-lapped it, and ending above in a narrow neck which entered the internal ring. There appeared to be only a pin-hole connection between the peritoneal cavity and this sac, which was now empty. Spread over it behind was the spermatic cord and vessels. The sac was excised and the large rings closed with catgut sutures and the edges of the skin wound brought together with horse-hair. A rapid recovery took place, the wound healing by first intention. Since then the boy has been perfectly relieved of his pain and discomfort.

Case III.—*Tumour of the left groin simulating hernia and due to a persistent canal of Nuck.*

Fanny W., æt. 2½ years, was brought to the Montreal General Hospital June 18th, 1895, suffering from a painful tumour in the left groin.

History.—When three months old she had whooping cough, and during this period the parents first noticed a small lump in the left groin near the pubic spine. This lump disappeared and reappeared at intervals. It was always seen after a crying fit.

On June 15th last the child fell from her carriage, and soon after the lump on the groin was found to be much larger and to remain so. It was tender on pressure.

When seen the child, which was a healthy female, presented a tumour the size of a small hen's egg in the left groin, commencing

above the external abdominal ring and proceeding downwards and inwards. It was tense, tender, non-fluctuating and dull on percussion. It could not be reduced, nor was it translucent. No elevation of temperature and no symptoms of strangulated hernia were present. The child was admitted and next morning the tumour was only about half the size and much less tense. Next day it had disappeared entirely. The parents took the child home, but returned in a day or two with the tumour as large as ever. Operation was advised and consented to.

On June 24th the child was etherized and the parts prepared as if for a radical cure of hernia. An incision two inches long was made over the tumour, which was now of small size owing to the child having been quiet and in bed for twenty-four hours. After cutting through the skin, a thick layer of fat, and fascia, a sac was reached which contained fluid. This was dissected out and found to be connected with the peritoneum by a stalk-like process which passed up into the abdomen with the round ligament through the inguinal canal. The sac was tied off and the wound closed. The connection with the peritoneum was so fine that a small probe could not be passed, but water could be made to percolate into the sac below through minute openings. The wound closed by immediate union and the patient was rapidly convalescent and discharged from hospital in ten days.

This sac was without doubt a portion of the process of peritoneum which descended through the inguinal canal with the round ligament and remained unobliterated; in fact it was a persistent canal of Nuck.

Case IV.—*Tumour of left side of scrotum suddenly appearing and simulating hernia.*

A. R., æt. four months, a healthy male infant, who had never any symptoms of swelling about the groin, was brought to me on June 28th, 1895, with a tumour in the left scrotum and with the following history: The night previous, after a severe crying fit, the nurse noticed a large swelling in left side of scrotum. This was tender and red, and ever since the child had been restless and uneasy.

On examining it I found a large tense swelling above the left testicle and which extended into the inguinal canal. It was tender and increased when the child cried or sat up. The tumour was very tense and elastic, irreducible and dull on percussion, but on testing it with transmitted light was found translucent, I immediately came to the conclusion that it was a case of re-opening of an imperfectly obliterated funicular process and advised a cooling lotion and rest. In a week I saw the child again. The tumour was somewhat smaller, but still as tense and elastic as ever.

There were no constitutional symptoms and the child slept and nursed well. So I told the parents there was nothing to fear and that probably the swelling would disappear of itself, if not, a small operation, which they much dreaded, would easily cure the case.

A month later the tumour had almost entirely disappeared and there was nothing much noticeable about the scrotum. Whether it will reappear, of course, is uncertain, but at such a tender age it is probable that the closing process will recommence and that the separation from the peritoneal cavity will be permanent.

REMOVAL OF THE MEMBRANA TYMPANI AND OSSICLES.*

By F. Buller, M.D.

Ophthalmic and Aural Surgeon to the Royal Victoria Hospital, Professor of Ophthalmology and Otology, McGill University.

It may be of some interest to members of this Association, not engaged in special practice, and who have limited opportunity for dealing with diseases of the ear, to learn what progress is being made by otologists in the management of morbid conditions which come especially within the scope of aural surgery.

A complete report on this subject would occupy much more time than the regulations as to time-limit will permit for one communication.

I shall, therefore, confine my remarks to a consideration of one surgical procedure which seems to have gained a firm foothold and an acknowledged value, within the past few years, though not even yet practised by all otologists. I refer to excision of the membrana tympani and one or more of the ossicles. Although this operation was proposed by Schwartz as early as 1873, and performed in fifty cases reported by Lucæ in 1885, it is only quite recently that Sexton, of New York, brought it prominently before the profession.

For a time hopes were entertained that in this operation we had found a means of successfully combating the common inveterate forms of chronic catarrhal otitis media. A more mature experience of the results obtained by the operation in this class of aural disease has, however, thoroughly quenched an enthusiasm which the mere prospects of so great a boon naturally aroused. Nevertheless the operation has proved to be of immense benefit in a common, and in some respects still more serious, form of middle ear disease.

Everyone who has had occasion to treat many cases of chronic suppurative disease of the middle ear can bear witness to the intractable nature of this affection in a large proportion of such cases, despite the most approved methods of cleansing and the most thorough use of antiseptic treatment. The failure of such treatment is due to several causes. First, there is the impossibility of reaching all the diseased parts in very many instances; and, secondly, the presence of disease of the bony structures involved in the inflammatory process. The diseased bone may be in the walls of the tympanum, in the ossicles, in the mastoid, or in the deeper parts of the external auditory canal, but by far more frequently in the two former.

* Read before the Canadian Medical Association, at Kingston, Ont., August 29, 1895.

Now, it is just in these that the operation in question is destined to prove of enormous benefit. Undoubtedly the same end may be achieved by either of two other operative procedures, which, however, are a great deal more formidable than the simple myringectomy and removal of diseased structures by way of the external auditory canal. I refer to Stacke's operation, and the equally radical operation of clearing out the tympanum through the mastoid.

I do not propose to describe any of these operations, since a full account of them may be found in several recent large treatises on otology. I merely wish to emphasize the fact that myringectomy and removal of the ossicles is a perfectly rational, simple, safe, and commonly efficient operation in many cases of chronic suppuration of the middle ear, which are practically incurable except by operation. After this operation the patient is able to go about, and if necessary attend to business, on the following day. The after treatment is exceedingly simple; it consists in changing the antiseptic tampon every day or two for a short time; and even when a discharge occurs, as it will after a few days in some instances, there is much better drainage of the diseased parts than before the operation, and with this, the ordinary antiseptic and cleansing measures are likely to be more efficient than before.

If removal of the ossicles and curetting of any diseased part of the tympanic walls does not suffice to thoroughly remove diseased structures and arrest the discharge, at least no harm has been done, and there will be no greater difficulty in more thoroughly exposing the tympanum in some other way should this be deemed advisable as a last resort. The operation probably never increases existing impairment of hearing, but, on the contrary, often leads, either immediately or within a short time, to a marked improvement. This indeed is the rule where there are no pre-existing labyrinthine complications. The thick and swollen tympanic structures, instead of conducting aerial vibrations to the labyrinth, have lost their proper function, and are better out of the way. It must, however, be borne in mind that the chief object of the operation is to free the patient from the constant menace to life which a persistent middle ear suppuration carries with it.

On this point I am disposed to believe that neither the general profession nor the public are by any means alive to the gravity of the danger to life which a persistent suppuration of the middle ear carries with it.

Unfortunately there is no means of discovering how many cases of meningitis, inflammation of the brain, supposed typhoid fever, etc., as

they appear in mortuary statistics, are in reality the final and fatal issue of chronic suppurative otitis media.

My own observations, though necessarily limited in this direction, lead me to suppose that the proportion of deaths from this cause is very much larger than statistics would seem to indicate or than most people are willing to believe. It is, therefore, a long step in the right direction if we have found out how to cure many of the hitherto intractable cases of suppurative otitis media.

I will now give the outlines of a few cases which I have operated upon within the past year. The results on the whole have so far been satisfactory, and I am confident they will be still more so in the future.

Case I.—Miss A., age 22, a slight, delicate young woman, has had chronic discharge from the right ear since childhood, but not constantly. Hearing reduced to contact for the watch.

At long intervals has had several attacks of intense headache and threatened mastoid disease. These attacks have always been relieved by removal from the ear of deep-seated accumulations of cholesteatomatous material, mingled with fœtid secretion, with the free use of antiseptic fluids by means of the middle ear syringe, together with counter-irritation of the mastoid. Her chief complaint is of frequent and severe headaches, which she attributes to the diseased ear. The general health is impaired, but from no other discoverable cause.

The local conditions are a thickened, retracted and much distorted drum-membrane, with perforation of the upper posterior quadrant. The discharge is scanty and collects as a fœtid greenish crust over the perforation and along posterior wall of meatus.

Several courses of local treatment in the past four years have not materially altered the local conditions.

On the 3rd of October, 1894, under ether anæsthesia, I completely removed the distorted drum-membrane, and malleus. The incus was not found. A quantity of epithelial debris was found in the vault of tympanum. After removal of this the ear was thoroughly syringed with solution of perchloride of mercury 1 in 4000, and the tympanum lightly packed with iodoform gauze, dusted over with iodoform and boric acid. This dressing was renewed every second day for a week, when it was found that the middle ear had become dry and free from odour and the hearing improved to two inches for the watch. This improvement has been maintained up to the present time. The general health is very good and there is entire freedom from headache.

Case II.—A. K., æt. 14. His only complaint is a constant discharge from the left ear, with tendency to headache and nose-bleed.

Some three months ago, after an attack of epistaxis there was pain in the diseased ear, tenderness over the mastoid, intense headache and vomiting. The threatened cerebral complication passed off after about two weeks' treatment of the ear.

In this case the purulent otitis media dates back to an attack of measles at the age of five years. All the usual remedies employed in this form of ear disease have failed to arrest the discharge for more than a few weeks at a time. The discharge is usually a thin pus of a somewhat offensive odour.

The malleus is *in situ*, but the membrana vibrans is pretty well all destroyed. The visible portion of the tympanic mucous membrane is moist and slightly granular.

On the 15th of September I removed the remains of drum membrane, malleus and incus and dressed the now free tympanic cavity with absorbent cotton pledgets dusted with iodoform powder. For two days there was a considerable oozing of blood, which necessitated changing the dressing several times daily. A firmer packing might have arrested this more promptly, but fearing the retention of septic material which might have escaped removal at the time of operation, I preferred changing the dressing as required. The bleeding finally ceased and at the end of ten days the ear had become quite dry and healthy and has remained so ever since. Hearing has improved from half inch for the watch to nine or ten inches. Has no more headaches and the general health is all that could be desired.

Case III.—May 10, 1895. Mrs. M., æt. 35. Chronic suppurative otitis media of left ear for twenty years or more. Discharge not profuse, but very fœtid. For the past six months has suffered greatly from a dull pain which she locates about an inch above and an inch and a half behind the meatus, and has an intense nervous dread of the brain becoming affected.

The lower two-thirds of the membrana vibrans is absent, remaining portion of membrane thick and red, malleus intact, but directed straight inwards. Hearing=contact for the watch. A thin, grey, purulent secretion constantly accumulates in the lower part of the drum cavity: no treatment has the slightest effect in relieving this condition.

June 15, removal of the membrane and malleus, incus could not be found. Patient was going about as usual the next day without pain or discomfort in the ear.

In ten days the ear appeared to be entirely aseptic and there was complete relief from all disagreeable sensations on the head. This, I have been informed, has been permanent and the hearing has im-

proved considerably; when last tested it was three inches for the watch. The ear discharges very slightly at times and is not entirely free from odour, but the distressing symptoms in the head are gone.

Case IV.—A. R., æt. 23, servant girl, first seen May 3rd, 1895. Right ear discharging rather freely since age of 18; came on after an attack of measles. Only upper half of membrane present; this is much thickened and very red, so also is the visible portion of tympanic mucous membrane. Hearing=six inches for the watch.

Has been treated for the "running ear" several times without benefit. The probe discovers no evidence of bone disease, though the discharge from the ear is usually highly offensive.

Local treatment until June 26th without appreciable benefit, then the remains of the drum membrane and malleus were removed. Prolonged and careful search for the incus, but without success, although the appearance of the articular surface of the malleus seemed to indicate that it must have been present.

After freely curetting the tympanic cavity it was dressed in the usual way.

Hearing for two weeks after the operation was reduced to one inch for the watch, but on the 15th of August was again six inches.

The ear continues to discharge, though much less than formerly, and the patient is well pleased with the improvement.

It is likely the failure to find the incus is an explanation of the imperfect result in this case.

Case V.—F. P., æt. 20, a strumous looking youth. has been much annoyed by a fœtid discharge from the right ear for the last ten years or more, but has never experienced more than a slight temporary relief from treatment.

The auditory canal was found filled with epithelial débris and fœtid secretion. When this had been thoroughly removed the deeper portion of the auditory canal was found narrowed and a thick mass occupied the position of the upper portion of the malleus. A month's treatment reduced this swelling sufficiently to show that the malleus was imbedded in the mass, but in other respects there was no improvement. Hearing remained as at first, the watch on pressure. There were frequent headaches and the same fœtid discharge.

On April 17th excised the malleus and with it the remains of incus, the long process being absent and the body partially destroyed by caries.

For a month after operation there was no discharge and hearing improved to two inches for the watch. Since then there has been a slight return of the discharge and some fœtor. It is probable there

is at some part a small area of diseased bone which as yet I have been unable to discover.

Case VI.—Miss W., æt. 23. For many years right ear discharging constantly; is much troubled with dizziness and headache. Hearing=0. Tuning fork not heard in right ear; left ear normal. Several months' treatment have given very little relief. Only that portion of the drum which lies above the folds remains. The malleus is *in situ*, buts its long process is wanting.

June 20th removed remains of drum membrane, and body of malleus. Cleared the vault of tympanum of an accumulation of epithelium, etc., but could not find incus. No reaction followed the operation, though the manipulation was unusually prolonged owing to persistent bleeding. In this case a new membrane, or at least a dry epithelial lining, was formed over the entire visible portion of drum cavity, except at the lower and posterior part; here there is granulation tissue sprouting from a small cavity in the bone which emits a thin discharge of a peculiar metallic odour.

She has been free from pain in the head and dizziness since the operation. Hearing remains=0, as before. This might be expected in the absence of bone conduction before operation.

Case VII.—A. B., æt. 14, a healthy boy, except that right ear constantly discharges since he had scarlet fever some six years ago. Suffers no other annoyance or discomfort. Hearing=six inches for the watch.

Membrana vibrans absent. Malleus retracted so that its extremity rests against the promontory. Visible tympanic mucosa fairly healthy in appearance. The discharge comes from the upper portion of the tympanic cavity and has not been arrested by treatment, which, however, cannot be properly carried out on account of interfering with his occupation.

July 15th removed remains of drum, malleus and incus; no reaction followed.

August 1st, there is only a slight moisture of the tympanic mucous membrane, which is thin and pale. Hearing is somewhat better than before operation, now being eight inches for the watch.

Resumé of seven cases as recorded above:

Case I.—Complete cure of discharge; marked improvement in hearing and of general health.

Case II.—Complete cure of discharge and improvement in hearing.

Case III.—Relief of head symptoms, improvement of hearing, and almost complete arrest of discharge.

Case IV.—Condition improved materially, but a moderate discharge

of a more healthy character continues, and there appears to be a good prospect of recovery.

Case V.—Considerable improvement, but discharge not completely arrested.

Case VI.—Good result: relief from head symptoms; discharge altered in character and lessened.

Case VII.—Good result; discharge cured and hearing decidedly improved.

Note.—In this last case, examination of the ears on August 31st, there is found a still further improvement in hearing, which is now fifteen inches for the watch.

THE NERVE CENTRES OF RESPIRATION.

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So much progress has recently been made in the study, both physiologically and anatomically, of the nervous system that I venture to think that this short paper, dealing with the important subject of the nervous system of respiration, will not be out of place. But, before proceeding to discuss the nervous mechanism of the respiratory centres, perhaps a glance at the historical and comparative portion of the subject would not be uninteresting.

Let us first turn to the history of the physiology of respiration, and trace rapidly its course from ancient times up to the present day. The first man to make observations on respiration was Aristotle, who thought that the act of respiration was to cool the blood and so govern internal warmth—this was in the year 384 B.C. His observations were correct, that the warmest animals breathed the quickest, but as we now know he reversed the cause and effect. About the years 131-203 A.D., Galen put forth the idea that the "soot" of the body was removed with the water expired; he also noted that the lungs passively followed the movements of the chest, and that the diaphragm was the most important muscle concerned in respiration, and that the external intercostals are inspiratory and the internal intercostals expiratory in action. Galen gave the impetus to research in the respiratory phenomenon. He divided the intercostal nerves and and muscles and observed the loss of voice incurred, and, on division of the spinal cord higher and higher, he found that the chest muscles lying higher up became paralyzed. Oribasius (360 A.D.) observed that the lungs became collapsed in double pneumo-thorax. In 1540 Vesalius used artificial respiration to restore the beat of the heart. Malpighi described the structure of the lungs in 1661, and from now on we progress more rapidly. Borelli elucidated the mechanism of the respiratory movements in 1679. Carbonic acid was detected by Van Helmont, and a century later Joseph Black found that the same gas, or "fixed air" as he called it, was given out during expiration. The discovery of oxygen by Priestley, in 1774, was the next most important event. A year later Lavoisier discovered nitrogen. he regarded the expired gases as the direct result of combustion in the lungs themselves. The existence of carbon dioxide in venous blood was pointed out by Vogel, and then Hoffman proved the presence of oxygen in arterial blood; but only after Magnus had extracted the gases of

arterial and venous blood, and analyzed them, wast it possible to understand the complex gaseous changes in any degree.

We will now take a look at the comparative physiology of the respiratory apparatus. Mammals have lungs similar to man ; in birds they are united to the chest wall, are spongy, and have openings on the surface communicating with thin-walled "air sacs," which are distributed among the viscera and communicate with the bones; birds have no diaphragm.

In reptiles there is a greater and lesser compartment as lungs, but in snakes one is abortive and the other elongated. Amphibians, when young, breathe like fishes, by gills, but later on they have two simple lungs. Some even retain their gills through life as do the perennibranchiate amphibians. Fishes have a swim bladder, besides their gills, and this may be compared to a lung. The Cobitis respires with its intestine. Centipedes and insects breathe by tracheæ distributed about the body and at one end opening on the surface ; these orifices can be closed at will. Crabs, Molluscs and Cephalopods have gills Spiders respire by tracheæ and tracheal sacs Gasteropods have not only gills, but lungs also. In the lower invertbrates, some have gills, others breathe by a special water vascular mechanism, and others have no special organs whatever.

We will now proceed to the study of the nerve centre and its mechanism. If in a few of the experiments given below some of the results seem curious as regards the vaso-motor and heat producing or internal respiratory changes, remembrance must be had of the fact that these centres are closely allied to the respiratory centre. The bulb is supreme over respiration and the cord subordinate to the medulla.

The vagi are the afferent and efferent nerves of the gill arches, but in mammals they are the principal afferent fibres of the respiratory centre, their efferent influence being confined to the larynx ; the facial nerve is efferent to the nose and the spinal nerves to the thorax.

The first attempt to demonstrate the mechanism of the nerve centre of respiration was made by Legallois, in 1830. He showed that an animal continued to breathe after the cerebellum, cerebrum and part of the bulb had been removed, but that the roots of the vagi must be left intact. Flourens showed that the regular movements of the face and jaw took place during asphyxia, provided the facial nerve was not divided ; in this he separated the nuclei of the facial and vagi nerves. The act of respiration is involuntary and automatic. This is shown by the fact that an injury done to the vagi roots stops respiration ; breathing will continue for a short time, however, after divison of the bulb above the vagus roots ; but a warm-blooded animal soon dies, as the

heat production, internal respiration and vaso-motor centres are cut off—and so the warm-blooded animal is a cold-blooded one. Should a section be made just below the vagi roots, all movements of respiration, except those of the nose and jaw, are lost. The reflex sensory effects from the cornea and nose are all done away with if a section be made of the bulb just below the tubercula acustica. Rhythmic movements of the nostrils are also lost, the centres for the facial movements being either above or transversed by the line of section. A section immediately below this is the first to affect the movements of respiration, and, as Markwald points out, the results resemble those of division of both vagi in the neck. This shows that the highest part of the centre governs or is connected with the regulatory fibres of the lungs. It will be shown below that these fibres enter the bulb through the "glosso-pharyngeal root," as it is termed.

A transverse section at the level of the ala cinerea causes irregularity of the respiratory movements. Sometimes the movements become periodic, and, after passing through all the stages of asphyxia, the respiration stops.

A section below the calamus abolishes respiration and reflexes.

Lallemand has given us some valuable information as to the limits of the respiratory centre. His results were obtained from anencephalous monsters in which life had been prolonged for as much as four days. The cerebrum and cerebellum being destroyed, during birth, in a fœtus, respiration occurred regularly six times a minute after complete section had been made of the bulb 1 cm. above the calamus scriptorius.

Galen found that division of the cord between the first and second cervical vertebræ was followed by death; with division between the third and fourth, natural respiration was lost. The diaphragm remained in action when the section was below the sixth cervical vertebra, the muscles of the thorax being stationary—lower down the muscles were movable; should artificial respiration be kept up, rhythmic movements of the face continue. Accidents in man demonstrate the correctness of Galen's observations.

Isolation of the bulb from the cerebrum and cerebellum, above and from the rest of the cord by section below the sixth cervical, when both vagi are divided, does not affect the diaphragm, which remains in action. But should the lower section be made higher up the cord the diaphragm ceases to act. In the frog one can destroy the cerebrum and mesencephalon, and divide the cord behind the atlas, destroying the lower portion of the cord, and extirpate the lungs and heart, and though no peripheral stimulus can now reach the bulb, yet regular

movements of the nose, mouth and vocal cords go on and traces of thoracic movements can be detected.

The above demonstrates the fact that the bulb governs respiratory movements, and a connection between the spinal nerve roots and the bulb is a *Sine qua non*. Some authorities have held that the large ganglion cells in the anterior horn of the cord cause the movements of the respiratory muscles and that the bulb simply co-ordinates and governs the whole. This opinion was based on the results of the experiment just mentioned. Brown-Sequard has noticed the rhythmic movements in new-born animals that were kept warm. They are found also in young animals when strychnine has been administered. Wertheimer and Rokitansky described the rhythmic movements in adult dogs in which artificial respiration had been kept up for a couple of hours. In these cases it must be recollected, however, that the cord is in an extremely excitable condition, and, therefore, all reflexes are exaggerated. and consequently rhythmic movements may occur in the face and limbs. Whether these rhythmic movements of the muscles aid respiration is perhaps questionable.

The only positive evidence we have of an inspiration occurring after separation of the cord from the medulla is furnished by Langendorff's experiment on the tortoise in which, after division, the inspirations became very much less and were followed by a forced expiration. From this experiment, then, we must admit that inspiratory stimuli can proceed from the subsidiary centres in the cord of the tortoise.

The usual inhibitory effects following section of cord are probably due to shock following division. However, Brown-Sequard always maintained that respiration was dependent on nervous centres distributed throughout the cord and the base of the brain. He drew attention to the effect of tumours involving the cord and medulla and to the results of dislocation of the odontoid process of the axis.

If a small portion of the medulla, the limits of which are not clearly defined, but lying below the vaso-motor centre and in the vicinity of the centres for the vagi, glosso-pharyngeal and facial nerves, be injured or destroyed, respiration ceases; hence Flourens called this spot the "noeud vital." This is *the* respiratory centre. It consists of two lateral halves which work synchronously together, as proved by the fact that if the bulb be delicately divided in the middle line, respiration goes on as usual; but now on division of one vagus, the costal and diaphragmatic respiratory movements become slower on the same side as the divided vagus, and a stimulus confined to one vagus affects that side only, and a lateral section of one-half of the cord just below the bulb stops thoracic respiratory movements on that side.

Although the main respiratory centre is said to be situated in the medulla with subsidiary centres in the cord, other observers locate centres in different parts of the brain.

Kohts locates a coughing centre on each side of the raphe, in the neighborhood of the ala cinerea. Christiani claimed a cerebral centre for inspiration in the optic thalamus, in the floor of the third ventricle, which is stimulated through the optic and auditory nerves. When it is stimulated directly, the inspiratory movements are deepened and accelerated, and it may even cause the respiration to stop in the inspiratory phase. This centre may be removed, and after this an expiratory centre is active in the substance of the anterior pair of the corpora quadrigemina. Martin and Booker describe a second cerebral inspiratory centre in the posterior corpora quadrigemina. These three centres are, of course, connected with the centre in the medulla. Markwald claims that not only the posterior quadrigemina but also the sensory nucleus of the trigeminus is concerned in maintaining regular respiratory rhythm. Yet other subordinate "cerebral respiratory centres" are described, Ott found that on stimulation of the tissue between the corpus striatum and optic thalamus the number of respirations was greatly increased. If this centre be destroyed a dyspnœic respiratory acceleration caused by heat (heat dyspnœa) ceases.

Spencer, however, points out that the above experiments do not point to a centre, but claims that the nerve tracts leading from the cortex to the respiratory centre in the bulb were stimulated; on experiments made on the dog, cat, rabbit and monkey he demonstrated four different areas on the cortex cerebri that gave definite results. The first area is situated upon the frontal lobe, outside the olfactory tract and anterior to the point where it joins the temporo-sphenoidal lobe; the olfactory limb of the anterior commissure, where the tract decussates, gave the same results, which varied in different stages of anæsthesia. The deeper the anæsthesia the greater the tendency to arrest in expiration. Lighter anæsthesia arrest was in either full inspiration or in over-inspiration. Respiration usually began again at normal rhythm immediately the excitation ceased. The next cortical area which on stimulation affects respiration is around the infra-orbital sulcus in the dog and cat, and is similar in the rabbit and monkey; the tract runs backward through the lenticular nucleus to the tegmentum. The result of stimulation of this area is marked acceleration. On stimulation of the area mentioned below an irregular, convulsive respiratory movement takes place. A sharp over-inspiration, followed by a similar expiration, and several such movements

follow the application of the stimulus, but at regular intervals and in a rhythmic manner. This action does not cease with the stimulus, but three or four may follow the cutting off of the current. The area that causes this is the olfactory tract (mucous membrane of the upper part of the nose, will give the same result), and it may be traced back to the uncinate convolution, and from thence into the crus, the two tracts meeting at the upper border of the pons. The next tract yielding results is the sensori-motor area and the descending motor tract on the cortex; naturally these can be gained by stimulating the central end of any sensory nerve, particularly the fifth. Strong stimulation causes a tonic contraction of the diaphragm and the ordinary muscles remain in action. By means of the over contraction of the extraordinary muscles the chest seems to be in the stage of over inspiration

It is obvious that these four areas mentioned above can be acted on by the will.

The bulbar centre can be affected in several different ways: first, stimulation of the vagus; second, stimulation of the cortex; third, stimulation of all sensory nerves; and fourth, stimulation of the centre itself in the floor of the fourth ventricle.

We will first discuss the action of the vagus nerve, and in this will follow Mr. Spencer's description, physiological and anatomical, of the vagus, separating it entirely from the spinal accessory (so-called), The bulbar portion of the spinal accessory is in reality a part of the vagus, although associated and running with, for a short way, the spinal accessory nerve proper. It joins the ganglion of the trunk of the vagus, but some of the fibres appear to run over the ganglion and so pass into the pharyngeal and superior laryngeal branches. Microscopically the difference between the two nerves is easily recognizable. as in structure of the spinal accessory resembles a motor nerve in the coarseness of its fibres, while on the other hand the fibres of the vagus are much finer and resemble the white rami communicantes of the sympathetic system. Separating the fibres in each root is a considerable quantity of nucleated connective tissue, and all the fibre have ganglion cells upon them. Again, the spinal accessory is absent in fishes and snakes and in animals higher in the scale, the rule may be laid down that the extent of its development is in direct ratio to that of the neck muscles, while the vagus is constant in vertebrates. The two nerves can be separated by very careful dissection and the microscope also shows that there are distinctly separated by a connective tissue sheath. In the rabbit, mule, horse, ass and dog all the roots of the vagus are closely or entirely united and the spinal accessory runs distinctly apart. In the cat there is a closer connection between the

lower bulbar roots and the spinal accessory. This resemblance between the vagus and the sympathetic system is not surprising when we remember that in cyclostomes the vagus and sympathetic run together as far as the anus, and that in mammals the vagus is connected with the superior ganglion of the sympathetic which sends branches to the ganglia of both the root and trunk of the vagus, and that there is also an intimate connection through the annulus of Vieussens, in the pulmonary and cardiac plexuses, and lastly that in the abdomen the two nerves completely intermingle. McLaughlin even describes the right pneumo-gastric as extending down far enough to supply the glans penis.

In experimenting on the vagus with an electric current it must be remembered that as there is no gap between the roots of the vagi, consequently it is very easy for the current to spread, and if dissection is attempted injury may be done to the roots and so we will get an inhibitory result. The following table expressing the functions of the vagus is taken from Mr. Spencer's Arris and Gale lecture delivered before the Royal College of Surgeons of England :

		Afferent.	Efferent.
Vagus.	Upper roots	Regulatory fibres of Resp. (lungs)	Crico-thyroid.
	IX Nerve	Fibres exciting resp. (Insp.)	Stylo-pharyngeus. (Œsophagus. Pharynx (constrictors)
		Sup. Laryngeal.	
	Middle roots	Fibres inhibiting Resp. (expir.)	Gastric
	X Nerve	Bronchial (cough)	Bronchial (muscular)
	Lower roots		Inf. Laryngeal, Cardio-inhibitory,
	of Bulb		Levator palati and azygos.
Spinal Accessory. "Nerve of Willis"=XI Nerve.			Sterno-mastoid and Trapezius.

The fibres that come from the lung enter the medulla by the highest roots, as is seen by the above table. On division of these roots the same result is produced as results on division of the vagus in the neck ; on stimulation of these fibres in the monkey, only slightly anæsthetized, the effect is an excitation of respiration. Should the stimulus be greatly increased there is a great tendency to arrest inspiration or to over-inspiration. A very strong stimulus, when anæsthesia is deep, applied to any of the roots may cause arrest of expiration, but the middle roots cause the arrest with the weakest current. The fibres that react most readily on the heart are those coming off from the bulb lowest down (bulbar portion of spinal accessory, so-called).

The pulmonary branches of the vagus contain the following fibres :

1. Afferent fibres, which, in general, when stimulated quicken inspiration by raising the excitability of the respiratory centre; sometimes, however, the effect is to slow respiration. These are fibres which when stimulated during forced expiration cause a fall of blood pressure by lowering excitability of vaso-motor centre.

2. Inhibitory fibres to the heart.

3. Motor branches to the smooth muscle of the bronchi and bronchioles.

4. Vaso-motor nerves to the pulmonary vessels.

5. Cough-exciting fibres (superior laryngeal).

Let us now consider the nerve fibres that carry impulses from the periphery to the respiratory centre.

On stimulating sensory nerves of all kinds the tendency is to quicken or excite inspiration. This, as we have seen, is reflexly due to the will and therefore no result is obtainable on an animal under the influence of an anæsthetic. Should the stimulation be too strong respiration may be stopped, but only by the contraction of the opponent muscles of ordinary respiration. A good example of sensory nerves stimulating inspiration is seen on the application of cold water to the skin, but the spasm of respiration that occurs in the last stage of drowning is not due to the sensory influence, as it occurs in animals under the influence of a narcotic. It cannot be due to the cold, as it occurs in water at the temperature of the blood. On excitation of the fibres entering the bulb by the middle roots of the vagus the floor of the fourth ventricle and an area of the cortex cerebri (described above) respiration may be inhibited, particularly when the animal is deeply anæsthetized. The difficulty in getting acceleration of respiration by stimulating the floor of the fourth ventricle is probably due to the unsteadiness of the current, thus spreading to the inhibitory centre. On stimulation of the fifth nerve through the nose we get a tonic inspiratory result, and on stimulation of the olfactory fibres a clonic inspiratory result. The nerves of the nose being sensory no inhibitory result is obtainable in animals under an anæsthetic, but inhibition may be got in animals in full possession of their senses. Blow an irritating vapour into the nose of a rabbit and you will find that it holds its breath.

Let us now turn to the influence of the blood on the respiratory centre. It can be stimulated through this medium in different ways: (1) deficiency of O in the blood, (2) by excess of O in the blood, (3) by too much CO_2, (4) by products of muscular metabolism present and (5) by variations in the temperature of the blood. We will now briefly discuss these conditions:

1. Reduction of the amount of O in the blood naturally excites respiration. If the quantity of O present in the blood is small hyperpnœa results, if the amount is still further reduced loss of consciousness ensues.

2. Blood containing a large quantity of O stimulates a failing centre, but if the centre is normal it produces an excitable condition and stimulates the centre so much that apnœa does not occur.

3. The presence of 3.5 per cent. of CO_2 in the air breathed causes hyperpnœa (Haldane). If the air contains 5 per cent. the rate of breathing has to be doubled to allow the blood to gather enough O. If CO_2 be mixed with air from which the O has not been extracted, about 7 per cent. of CO_2 can be inspired without ill effect, the quickened respiration bringing in enough O.

4. In the rabbit, weak lactic acid acts as a direct stimulus to the respiratory centre, and in exercise or work, owing to the diminished alkalinity of the blood as more CO_2 and lactic acid the product of muscular metabolism is thrown into it, respiration is quickened and so the amount of O and CO_2 in the blood is kept normal. In the horse the quantity of O inspired and CO_2 expired is increased during work, but the respiratory quotient is not altered.

5. On gently heating the blood in the carotid artery respiration will be quickened, or the animal may be placed in a warm chamber and on raising the temperature the same result will be noticed. During this experiment the animal cannot be made apnœic and shows great resistance to narcotics. If sufficient heat be applied to raise the rectal temperature 1° C. the respiratory rate may be doubled.

Having discussed the different ways of exciting the respiration through the blood we now find that the action of the centre may be lowered in the following ways:

1. By excess of CO_2 to the extent of asphyxia, and by poisons, as narcotics, etc.

2. By diminution of the amount of CO_2 in blood.

3. Impairment of the circulation through the centre.

In asphyxia we have a series of peculiar changes, and these phenomena may be said to be due to the centre of respiration suffering from want of O owing to the failure of the circulation. In the first stage, that of prolonged expiration, the blood pressure rapidly rises, but it soon falls again, due to the vaso-constrictor influences becoming paralysed. In the same manner is the heart affected, and so the failure of the circulation is due to paralysis of the vaso-motor centre and the heart muscle.

The heart continues to beat very slowly after the cessation of

breathing and may continue for some time. I have observed the heart of a man beating three minutes after respiration had stopped. This was in an unfortunate being executed in Ontario for murder. The auricular beat outlasts the ventricular contraction. If the ventricles are still beating inflation of the lungs will restore the heart's force and blood pressure. Sir J. Eric Erichsen and Professor Sharpey restored the circulation when the heart had ceased beating for two minutes by using O instead of air for inflation.

Inhibitory impulses to breathing may be overcome by starting afferent impulses, exciting inspiration: a simple and efficacious plan is to draw forward the tongue in a rhythmic manner, but naturally if the patient is in the third or comatose state of asphyxia no result can be obtained. Should the blood pressure rise on stopping artificial respiration it is almost certain that breathing will be resumed, if it falls respiration will not return. A person who has been submersed for a long time and respiration stopped and is then revived must be in such a state that internal respiration was depressed at the time of submersion, and so the amount of CO_2 in the tissues was small and consequently the heart continued beating. CO_2 is not the only poison that effects the respiratory centre. On the application of cocaine to the floor of the fourth ventricle respiration is paralysed, on removal respiration is resumed. Chloroform and ether act much in the same way when directly applied. Of course hydrocyanic acid and carbonic oxide gas act much more quickly. If O can be administered quickly enough and the gas got rid of, recovery is possible. Haldane placed a a mouse in a glass chamber and passed a stream of carbonic oxide through it. The effect was rapid on the mouse, which panted and fell on its side, while its ears became a reddish colour. He then passed a stream of O through and the animal quickly recovered.

If a stream of ozone be passed through a solution of curare it (the curare) rapidly loses its poisonous properties. It is believed, therefore, that curare withdraws O from the nerve tissues. Strychnine does not stimulate respiration, but opposes or inhibits inspiration by acting on the nerve roots that supply the muscles of extraordinary expiration. It is the ataxic and clonic action of these muscles that inhibits inspiration. The respiratory centre becomes asphyxiated by too much CO_2 and the abdominal muscles are violently contracted by each spasm, obviously then the treatment of a case of strychnine poisoning is extremely difficult; for to get rid of the depression of the over-action of the respiratory muscles by narcotics, while artificial respiration with O is kept up so as to prevent the centre being asphyxiated, is no easy matter.

Let us now turn our attention to apnœa. If artificial respiration be employed on an animal at the ordinary temperature of a room, it is rapidly cooled, and as we have seen that apnœic pauses are difficult to obtain when an animal is over-heated, conversely then it is now possible and even easy to obtain long ones. Man can, by practice, hold his breath for some time, even over a minute, but first he must take several deep breaths. The absorption of the O in the lungs is aided by the gradual contraction of muscles of respiration favouring the entrance of the O into the blood. This is the case in whales.

It must be remembered in discussing apnœa the close relations existing between the centres of respiration, of heat regulation and vascular control. The first two are closely allied in warm-blooded animals, for the excess of CO_2 produced by the production of heat must be thrown off, but owing to the low state of the excitability of the heat-regulating centre in a new-born animal the animal is practically a cold-blooded (more or less) one. Puppies furnish a good example of this, as at first they react like cold-blooded animals, their temperature rising and falling with that of the surrounding medium, and the amount of CO_2 given out is in direct ratio to their temperature. An unhatched chick resembles a cold-blooded animal, but it gains a heat-regulatory mechanism earlier than the puppy, as it runs about soon and so has control of its muscles. A premature fœtus resembles a cold-blooded animal, for little CO_2 is produced and so the centre of respiration is not excited, but in a full-term child the centre is excitable enough to be influenced by any increase or decrease of CO_2 in the blood, above or below that amount existing in the mother's blood.

If the arterial circulation be cut off from the uterus in a pregnant animal, the fœtus will breathe "in utero." Ordinarily in the fœtus the venous state of the blood is sufficient stimulus to the centre, but should the centre be from any cause weakened respiration may not take place and so death result. The simple entrance of O in the first breath increases the excitability of the centre, stimulates internal respiration, and by distention of the lungs diverts circulation through them. Should a fœtus be apœnic a sensory stimulus may cause it to inspire O and so raise the excitability of the centre, but, as we have seen above, if the fœtus is in a state of asphyxia it responds to no sensory stimuli. Cold is a bad stimulus, as it tends to lower the excitability of the centre.

Hybernating animals become cold-blooded and their circulation becomes extremely feeble. There is no respiration and only a small amount of CO_2 is produced. An atmosphere containing enough CO_2 to kill a rat is borne with ease by a hybernating dormouse. In

short, hybernating animals' respiratory centres are in a state of apnœa. Asphyxia is produced in a warm-blooded animal by a too rapid production of CO_2, but should the animal have a large amount of blood containing a quantity of O and a good tension in the lung, asphyxia may be delayed. Paul Bert's experiment demonstrates the significance of a large amount of blood carrying plenty of oxygen.

He took a fowl and a duck and plunged the former under water and found that it was soon distressed, bubbles of gas escaped from its lungs, it fell over and the corneal reflex was lost in about two minutes, and after a series of inspirations it was dead in about three minutes. The duck, on the other hand, remained under water seven minutes without making an expiration. Its heart beat much slower and even fell from 90 to 20 a minute, the desire for O not being shown for about ten minutes, then the animal lost consciousness and its reflexes, let air escape, became convulsed and died. The above great difference in the two birds cannot be due to the duck's habit of diving as their behaviour is exactly similar when both their tracheæ are clamped, the duck lives much the longer again. The air sacs and lungs are similar in the two birds. Paul Bert found that the duck contains one-third more blood than the fowl, weight for weight. On abstracting about half the quantity of blood from the duck it died as quickly as the fowl.

The peculiar phenomenon of Cheyne-Stokes respiration first noted by Cheyne, afterwards more fully investigated by Stokes and hence called by their united names, is a rhythmic and periodic respiratory act seen in certain diseases and when the blood supply to the brain is interfered with. The respirations are shallow at first, but each succeeding respiratory act is deeper than the preceeding one until a maximum is reached, and then they gradually become shallow again and a pause occurs, during which no respiration takes place, in fact a state of apnœa exists. Sir James Paget expressed the view that rhythmic nutrition causes rhythmic movement, but the movement becomes periodic when the cells are dying as is seen in a dying heart It may be explained by the theory that the time is lengthened for the storing up of inogen before the kinetic force is expended in an inspiration. Periodic respiration is seen in children asleep, "Biot's respiration." In this there is no variation in the depth of the respiratory act and it is also observable after doses of morphia and chloral. It is the normal manner of breathing in the Myoxus during hybernation and intercranial pressure may produce it. The excitability of the centre is lowest during the pause. If a frog's aorta be ligatured on its removal afterwards the frog exhibits the Cheyne-Stokes pheno-

menon. Again we have here an additional proof of the close relationship existing between the vaso motor centre and the centre of respiration If we produce periodic respiration in an animal mechanically we will get an exaggeration of the Traube-Herring curves, at the same time conversely this alteration in the blood pressure, as shown by the curves, may influence a failing or weak respiratory centre. Knoll claims that periodic respiration is often the result of reflex action. There is nothing in this phenomenon to show why recovery should not take place even when the Cheyne-Stokes state of respiration has existed for months.

We may conclude with a glance at some of the changes exhibited in respiration under different intracranial pressures. At first increased pressure is excitatory, so much so as to cause inspiratory spasm followed by a slowing of the rhythm, diminution in depth and finally paralysis of all respiration. As seen in cranial or cerebral hæmorrhage when the first symptom is panting and deep inspirations compression of the carotids alone is sufficient to quicken respiration.

The intracranial pressure being kept up it will be readily understood that a mean pressure may be maintained, should a clot or foreign body be present in the brain, by the displacement of an equal amount of cerebro-spinal fluid into either the canal of the cord or the lymphatics, the pressure of the cerebro-spinal fluid being, between the blood pressure in the veins and that in the capillaries, equal to about 10 or 15 mm. mercury. Should the pressure be applied slowly it may be borne without noticeable symptoms, but sudden pressure at once produces excitatory symptoms. Sir Astley Cooper trephined a dog and applied pressure with his finger on the meninges. He found that the dog at first lost consciousness, then became comatose and the heart's action slow, but on removing his finger the animal recovered.

Spencer and Horsley use a thin rubber bag filled with mercury to apply pressure; they found that the cranial contents could be diminished about 5 cc. without symptoms. They obtained the same symptoms on direct pressure on the bulb that they obtained by pressure on the cerebrum. The heart recovers first on the removal of the pressure and consequently this is followed by a rise of blood pressure, then, as we have seen above, respiration re-commences. The heart slow at first, labours still more as carbonic acid accumulates in the blood.

If artificial respiration be carried out at the same time the pressure is applied, the heart beats quicker and there is an increase of blood pressure, in fact similar to that following division of both vagi, when a very high pressure may be obtained and breathing may be resumed in spite of the intra-cranial pressure, which with a normal blood

pressure would stop respiration at once: however, blood pressure soon falls if the pressure is continued for any length of time.

It has been demonstrated that the lenticulo-striate artery is a direct continuation of the internal carotid and is therefore submitted to a greater blood pressure than the surrounding arteries. Naturally, then, pressure on the carotids would lower the pressure enough to allow a clot to form on the lenticulo-striate should hæmorrhage occur. Artificial respiration will keep the heart and centre from asphyxia, and as respiration fails first this should be persevered in until enough cerebro-spinal fluid shall have been removed to make room for the clot and so compensate for the increased pressure.

Direct pressure on the upper part of the cord, artificial respiration being kept up, stops breathing but does not affect the heart. Pressure on the upper part of the floor of the fourth ventricle will slow the heart but quicken respiration; when applied to the lower part of the same ventricle both the heart and respiration are slowed: this is the usual result of intercranial pressure.

Clinical Reports.

APHASIA WITH LEFT HEMIPLEGIA.

By James Bell, M.D.,

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Authentic reports of cases of left hemiplegia, with complete aphasia, due to a localized lesion, are sufficiently rare to justify the publication of the following facts: On the 11th of March, 1895, I saw, in consultation, a young man about 30 years of age who was suffering from an acute painful condition in the left hypochondrium which it was thought might require surgical treatment The spleen was large and very tender, and the patient was suffering from a severe valvular lesion of the heart, which had followed a heavy lift in November 1894. There was both aortic and mitral insufficiency and a greatly dilated heart, with a loud double murmur at the aortic orifice and a systolic murmur at the mitral. There was no doubt in my mind that the acute splenic condition was due to embolic infarction and that no surgical interference was indicated. In fact the prognosis was as bad as possible. On the 21st of March the patient suddenly became paralyzed on the left side and completely aphasic. He remained conscious and died rather suddenly on the 23rd of March, two days after the onset of the hemiplegia. When these facts were communicated to me I wrote his physician for further particulars (to verify them), and learned among other things that the patient had been a left-handed man. There was no autopsy, but there can be no reasonable doubt but that the cerebral lesion, as well as the splenic, was of embolic origin.

TWO CASES OF VOLVULUS OF SMALL INTESTINE.

By Robt. C. Kirkpatrick, M.D.
Demonstrator of Surgery McGill University, Surgeon to Montreal General Hospital.

I have had under my care two cases of this unusual condition presenting such widely different symptoms that I thought it would be of interest to bring them before you to-night.

The first case, Lizzie M., aged 30, entered the Montreal General Hospital November 16, 1894, complaining of pain in the abdomen and vomiting. For a week previously she had had cramps in the upper part of the abdomen. Two days before admission pain came on in the epigastric and right inguinal regions, becoming more severe until by evening the pain was constant and stabbing in character. The next day vomiting came on and the following day she entered the hospital. Since the beginning of the trouble the bowels have not moved. We found her condition on examination as follows: The skin is of a subicteroid hue and the conjunctivæ are yellowish. She lies on the right side with legs drawn up, but is very restless. Abdomen tense and a little distended, tenderness on pressure, especially in epi- and hypogastric regions. McBurney's point painful, but not markedly so. No tumour: tympanitic note all over, but liver dulness not obliterated. Temperature 100.6°, pulse 78, respiration 32.

The condition remained about the same until the 19th, when it was decided to operate. The vomiting continued and no movement of the bowels was obtained, although some flatus was passed. During the whole time the distention of the abdomen did not become great, nor was there any tumour to be made out.

The operation was an exploratory incision made in the middle line above the umbilicus. The gall-bladder was found normal, but on withdrawing the small intestine from the abdominal cavity a curious condition of affairs was found. The part first withdrawn was collapsed, then came a deep constriction in the gut, then about three feet of intestine and finally another deep constriction. There were no bands or adhesions and the bowel was drawn out very easily from the abdomen. The large intestine was found much distended, therefore the incision was extended downwards, passing to the left of the umbilicus, in order to permit of the examination of the sigmoid flexure and rectum. Nothing, however, was found to account for this condition and the abdomen was closed. The recovery was uneventful and the

* Read before the Montreal Medico-Chirurgical Society. June 28, 1895.

patient left the hospital on December 19th, thirty days after the operation.

The second case, Wm. R., aged 19, presented a very different clinical picture. On April 21st he complained of a little uneasiness in his bowels with some swelling of the abdomen. During the afternoon he went to stool twice, but noticed nothing unusual. From time to time he had had similar attacks, so did not pay much attention to his sensations. However, while at supper the same evening, about 5.45, he was suddenly seized with intense stinging pain in the abdomen. His brother assisted him upstairs to his bedroom and loosened his clothing. While doing so he noticed that the patient's abdomen was swollen, hard and tender. There had been no vomiting and no diarrhœa. Dr. Drummond saw him soon after and sent for me. When I saw him about 7 o'clock he was lying partly dressed on his bed on the right side with his legs drawn up. His lips were livid and his finger nails were also cyanosed. He was suffering severely and was quite conscious. Any attempt to move him gave great pain, consequently the examination was rather superficial.

The abdomen was greatly distended, very tense and tender. Liver dulness apparent, but note tympanitic elsewhere. There was a history of having been shot in the left side, just below the heart, and from this he dated all his abdominal troubles.

The patient was brought to the hospital and as soon as preparations could be made the abdomen was incised in the middle line below the umbilicus. No signs of peritonitis were found, but the small bowel was collapsed. After withdrawing about three feet of this a distended portion was come to—about eight inches in length—with a deep constriction at each end: beyond this the bowel appeared normal. The distended portion was dark in colour, but had not lost its natural lustre, and hot cloths being applied it soon regained its normal appearance. The abdomen was closed and the patient made a good recovery.

In giving his history he spoke of attacks to which he was subject and which he referred to as fainting spells and attacks of dizziness. Subsequent investigation showed these to be epileptic fits of the *petit mal* variety, but at the time they made the history still more confusing, as he referred them to some stomach disturbance and appeared to think that they were connected with the attacks of abdominal pain.

In neither of the cases had we any symptoms which might be termed diagnostic, nor is it usual to have any such symptoms in cases of volvulus. The only symptom which they had in common, outside

of the usual symptoms of obstruction, was the decubitus; both lay on the right side with the legs drawn up. It is easy to understand how, in a case of sigmoid flexure with a long mesentery, this condition may occur, but in the small intestine, even with an elongated mesentery, the mechanism is more difficult of explanation. The two ends of the sigmoid flexure are not far apart and the looseness of its attachments varies much in different subjects. If the loop of bowel is long and loosely attached, one limb of the flexure may be twisted over the other and so obstruction formed. This occurred in a case which I saw some years ago at the General Hospital.

Taking into consideration the frequency of hernia and the fact that this condition must always be more or less accompanied by elongation of the mesentery and that consequently this state of the attachments of the bowel is far from being uncommon, while according to all writers on surgery volvulus of the small intestine is a very uncommon occurrence, we cannot attach much importance to this point. In fact I have not come across any satisfactory explanation of why it should occur.

It may be questioned whether these were cases of volvulus at all. The total absence of bands or adhesions of any kind, the distinct points of constriction and the absence of inflammatory conditions practically rule out all other conditions. Besides this evidence by exclusion, in the second case there was more direct proof—the twist could be readily reproduced outside of the abdomen.

The happy result in these two cases, although I must admit the diagnosis was not made until the abdomen was opened, would encourage us to operate early in cases of obscure gastro-intestinal disease where we have symptoms of obstruction. In the second case the pronounced symptoms had only lasted four hours, yet the bowel was already turning black and before long would have become gangrenous. The mere drawing out of the bowel loosened the twist and no difficulty was experienced in returning the abdominal contents.

Up to the present time there has been no return in either case, seven months and two months respectively.

In concluding I wish to thank Dr. Armstrong for his kind assistance at both operations.

CASE OF ASPHYXIATION BY ILLUMINATING GAS.

Administration of Oxygen—Recovery.

By J. Shillington, M.D., Ottawa.

A young man, æt. about 30 years, went to bed between the hours of 12 and 2 o'clock on the night of May 24th. The stop-cock of the gas-jet in his bedroom was improperly adjusted and the gas escaped into his bedroom until 11 o'clock next morning, when a chamber-maid perceived the odour of gas and gave the alarm at the office of the hotel. The clerk immediately entered the room, turned off the gas and opened the door and window. I was immediately summoned and hastened to my patient, who was almost pulseless and in a most profound state of asphyxiation; respirations were very shallow and heart-beat almost inaudible. I found that his bowels had moved very freely, the stool being dark and very offensive. He was immediately removed to another room, through which a good, strong breeze of fresh air was blowing. Artificial respiration was carried on; the jaws, which were clenched, were opened and a gag placed between his teeth, the tongue being seized by a pair of forceps and drawn forwards. The heart being weak I gave him 1-30 grain of sulphate of strychnine hypodermically and bled from the arm. The heart's action seemed to increase somewhat and respiration to improve when this was done, but soon began to weaken, when strychnine sulph. 1-60 grain was injected, which again increased the heart's action. I should have stated that my friend, Dr. C. R. Church, was also sent for and considered artificial respiration too laborious and decided on using a battery (interrupted current) over the phrenic nerve, the positive pole being placed on the neck from the ear to the clavicle, the negative being placed over the region of the diaphragm and almost as low down as the pubes, the positive pole being held on the neck while the negative was interrupted in its position and not being used longer than from five to twenty or perhaps thirty seconds. This caused deep inspiration and for a time the general condition improved. I should also state that an electric brush was used which seemed to act better than the sponge. Occasionally this brush was applied to the tip of the nose and this seemed to assist respiration and rouse our patient. Oxygen was thought of, but we had no appliances by which we could manufacture it, and our patient about four o'clock in the afternoon began to show signs of sinking rapidly; our battery solution had become weak and a second battery was procured. The Ottawa University

was mentioned as a source from which we might obtain oxygen, and a telephone message to Professor Williams (professor of chemistry), stating the object for which it was required, caused him to leave his class to make the oxygen for us. Rubber bags with stop-cocks were sent in cabs to us, and the tube with the inhaler was detached from a gas cylinder and in the end of this was placed a cork through which a hole was bored and in this the tap was placed, the inhaler placed over the nose and mouth, the stop-cock turned on and pressure made on the rubber bag to expel the oxygen, at the same time the battery being used over the phrenic nerve to cause deep inspirations. From four to six or seven inhalations of oxygen were given, and then our patient's face became dark when we removed the inhaler and turned off the oxygen. In from ten to fifteen minutes this was repeated, and after using our new remedy (oxygen) a very short time we were rewarded with marked signs of improvement. At about 8.30 p.m. our patient had recovered sufficiently to recognized pain and to groan when the strong current of electricity was applied to his body, or more particularly when the electric brush was applied to the tip of his nose. When asked if it hurt him he replied "Yes." About 10.30 p.m. he could speak a little, but only answered "yes" or "no" when he was asked questions, but all of these were answered correctly. In all I think about twelve or fifteen gallons of oxygen were used. I am thoroughly convinced that had it not been for the oxygen which we administered our patient would have died. His recovery was slow and his appetite was very bad, his bowels constipated and his head ached violently, while there were pains in his arms and legs which he described as being rheumatic in character. The voice was husky for about five days. The temperature varied from 99 to 102 for about the same time. A powder containing ten grains of calomel with one grain of ipecacuanha was given on the second night, followed by a wineglassful of Rubinat water in the morning, which caused his bowels to act freely four times. Tincture of iron with strychnine was administered for several days and in about a week he had recovered.

A CASE OF TUBERCULAR MENINGITIS WITH HEMIPLEGIA AND APHASIA—AUTOPSY.

By Charles W. F. Gorrell, M.D.,

Medical Superintendent Robert Garrett Hospital for Children, Mount Airy, Md., U.S.A.

Patient, J.G., male, æt. 11 years, white, came into hospital on July 6th, 1895, complaining of pain in the head, and with the following history: On June 29th, 1895, the patient after riding on the street cars, came home and partook of a heavy supper. Immediately afterwards he vomited, and complained of frontal headache. During the night the patient slept well. He remained in bed during the morning of June 30th, appearing dull and sleeping most of the time. He vomited again at supper time, his headache became intense, but soon disappeared and the patient again passed a comfortable night. On the following days the lad remained about the house, being drowsy and sleepy and complaining of dizziness every time he assumed the erect position. Since July 4th the patient has not vomited, the dizziness has disappeared and since then, up to the time of entrance into hospital, he has only complained of headache. There is no history of any attacks of epistaxis, diarrhœa, sore throat, cough or night sweats. The patient never had any of the exanthemata, nor has he had middle ear disease.

Family history—Father alive and well, aged 32 years. Mother alive aged 34 years; is troubled with a cough, and says she has had hæmorrhages and night sweats. The last hæmorrhage was three months ago. Patient has one brother and two sisters alive and well. One brother died of "spasms" aged two years and seven months.

Present condition—The patient is a fairly nourished boy; mucous membranes of a good colour; skin dry; malar eminences flushed; tongue coated, but red at the tip and edges; appetite fair; bowels constipated. Pulse 72, full, easily compressible, regular in volume and rhythm. Temperature at 4 p.m., 102°; respirations 36.

Cardiac and respiratory systems normal.

No distension nor tenderness of the abdomen. No rose spots. Liver and spleen not enlarged.

Pupils equal, reacting to light and accommodation; no strabismus; no nystagmus; no conjugate deviation; nothing abnormal detected in the fundus. No tender spots can be detected about any of the orifices of the cranial nerves.

The urine is acid, of a pale straw colour; specific gravity 1022; no albumen; no sugar. Ehrlich's reaction not present.

Treatment—Rest in bed, milk diet ; ice cap to the head ; calomel one-tenth of a grain every hour.

July 8th. The temperature ranges from 101-5° a.m. to 102-8° p.m. ; the pulse from 64 to 116 ; respirations 30 to 34. Patient slightly delirious at night.

July 10th. Condition much the same. Pulse occasionally assumes a dichrotic character. Patient dull, bowels constipated ; no enlargement of the spleen ; no rose spots. Blood cells regular in shape and size. No leucocytosis.

July 15th. Since July 10th the temperature has remained high, from 101° to 102-8°. This morning it fell to 98-4°. The pulse has fallen as low as 52. The patient has been quite rational and wanted to get up and play with the other children. At noon he was quite cheerful and asked for an increase in diet. About midnight the nurse noticed the patient raise his right arm, with fingers extended and separated in a condition of tonic spasm. When seen a few minutes later the patient's eyes were wide open, the pupils dilated, left rather more so than right ; both reacted slightly to light ; the retinal veins were dilated and somewhat tortuous. There was slight delirium. Pulse 144, regular, and easily compressible. Shortly afterwards convulsions set in which were confined chiefly to the right side. The muscles of the head and face were first affected ; then the right arm and leg. The left arm and leg were only slightly affected. These spasms recurred at short intervals during the greater portion of the night.

July 16th. 6 a.m. Although all the right side is now paralyzed, the patient is apparently conscious and can understand when spoken to, but cannot answer questions. When the mouth is opened, the jaw is pushed to the right side, while the face is drawn to the left. On shewing the teeth, the lip is drawn much higher on the left side than on the right. Grasp of the left hand good and he is able to move the left arm and leg freely. 7 p.m. Patient voided urine naturally ; seems to be quite rational and motions with his left hand for anything he requires. When trying to talk he utters a deep gutteral sound.

July 17th. 1 a.m. Spoke several times but very indistinctly. Is very restless. 8 a.m. Can move right arm and leg slightly. Grasp of right hand very feeble. Can articulate well No motor or sensory aphasia.

July 20th. Since July 17th patient has been very dull. Temperature ranging from 100° to 102°. Pulse from 60 to 80. Has had three convulsions involving the right side of face and right arm. Rests with his knees drawn up and complains of headache.

July 25th. Patient has been comatose since yesterday. Inconti-

nence of urine and fæces. Abdomen scaphoid. Slight internal strabismus of left eye. Temperature 99°, rectal.

July 24th. Patient comatose. Temperature 105° ; pulse 140 ; respirations 52. Died at 5.10 p.m.

Examination of the brain four hours after death.—Dura mater was adherent to the pia and arachnoid over the central convolutions on the convexity of the brain. On the left side the upper part of the ascending frontal and ascending parietal convolutions were thickly studded with deposits of miliary tubercules, each nodule being whitish in colour and about the size of a pin's head.

On the right side the upper part of the ascending frontal convolution had several nodules of miliary tuberculosis, but they were not so well marked as on the left side. At the base of the brain there was a slight matting of the membranes about the perforated spaces, with a few whitish deposits. The left middle cerebral artery was covered with small miliary nodules. Only two or three of these lesions were detected on the right middle cerebral artery. No thrombosis could be found in either of the vessels. Both lateral ventricles were much distended with a clear fluid. The internal capsule on both sides was normal. An examination of the thorax and abdomen could not be obtained.

As a rule in children of this age the onset of tubercular meningitis is seldom very acute, there usually being a period during which the child shows some failure of health, loss of weight, etc. Rarely, as in this case, do the acute symptoms set in without any prodromata, the patient being apparently perfectly well until the attack of vomiting came on. This attack lasted for six days and was accompanied by the other symptoms common to the first stage of the disease. Another unusual feature was the lucid period occurring immediately after a prolonged series of convulsions. The child recovered from a convulsion at 5.15 p.m., July 15, and at 5.55 p.m. he was quite conscious and motioned for articles of food and drink. For a period of five days the patient's intellect seemed to be in about the same condition as on entrance into hospital. During this period the pulse showed marked improvement, falling from 145 per minute to 65, and remaining during this period between 65 and 80, being strong, full and regular in volume and rhythm. It is a well recognized fact that these stages of apparent improvement do occur, as in a case in the Montreal General Hospital in the early spring of 1894.

Oxley (*Liverpool Med.-Chir. Journal*, July, 1885) points out that in a few cases of tubercular meningitis shortly before death there is an apparent improvement, the intellect becoming clear and the patient appearing almost in a normal state. He also states that it is very rare to have the pulse partake of this improvement, it generally remaining rapid and weak. In this case when the patient again became comatose the pulse rapidly rose to 140 and was feeble.

A RARE FORM OF DISLOCATION OF THE HIP—EVERTED DORSAL DISLOCATION.*

By H. S. Shaw, M.D.,

Assistant House Surgeon, Royal Victoria Hospital.

A. M. R., aged 39, came to hospital complaining of deformity and uselessness of his right lower extremity. While at work, September 5th, 1894, unloading large cases of plate glass from a flat car, a case fell over the end of the car, and crushed the patient to the ground underneath it. He was treated for three months in the nearest hospital for fracture of the shaft of the femur, compound fracture of leg, and injuries to the foot. Since leaving the hospital the leg has improved but the foot is painful and the patient cannot lean his weight on it.

The limb presents no eversion, but considerable shortening—2½ inches—of which 2 inches is due to shortening of thigh and half an inch of the leg. There is marked flattening of the buttock and a much altered gluteal fold. The head of the bone is felt on the dorsum, well forward in front of the great trochanter and just below the anterior superior spine, and is freely movable in a kind of socket which exists there. All the ordinary movements of the joint can be performed by manipulation with certain limitations, but sometimes there is slight discomfort and a creaking sound. Nelaton's line passes just below the trochanter instead of above it, and Bryant's triangle also shows the upward displacement markedly.

In addition to the hip condition, slightly more than half way down the thigh, the callus thrown out around the femur at the seat of the fracture can be felt, and at this point there is a slight angularity outward.

The leg shows the compound fracture wound, and also the scar of a deep penetrating wound on the interior tibial region, which has severed muscles and nerves, and given rise to drop foot and impaired circulation and sensation over the area supplied by the anterior tibial and musculo-cutaneous nerves.

The hip condition presents a form of dislocation which has been very rarely described. In the common dislocation on to the dorsum ilii, the thigh at the time of the injury is usually in a flexed position. The head of the bone being forced backward through the capsular ligament, the outer limb of the Y ligament is put on the stretch and fixes

* Read before the Montreal Medico-Chirurgical Society, June 14th, 1895.

the trochanter, while the head being free passes up on to the dorsum i.e., inversion of the limb is due to the outer limb of the Y ligament ; and, experimentally, according to Bigelow, if the outer limb is ruptured, the foot can be freely everted.

In the present case the injury occurred with the limb in the extended position and the head of the bone being driven directly upward to the dorsum, stretched the outer limb of the Y till it was ruptured. The force usually producing inversion being absent, the muscular action of the obturator internus was sufficient to cause eversion. Thus we have an everted dorsal dislocation, classed by Bigelow as an anomalous or irregular form as it involves rupture of part of the ilio-femoral ligament.

The absence of eversion of the foot in the present case is explained by the fact of the fracture having occurred at the same time as the dislocation. The limb being set in the straight position has knit with the axis of the condyles almost at right angles to the axis of the head and trochanter, instead of in a parallel axis.

TWO CASES OF POISONING BY ATROPINE.

By Alfred S. Wade, M.D., St. Lambert, P.Q.

On June 3rd, 1892, I was called to see Mrs. D., æt. 30, an out-patient of the eye department of the Montreal General Hospital, who was said to have taken poison. I hurried to her residence and found an empty half-ounce bottle on the table marked "Gt. At. grs. IV." On enquiry I found that the bottle had just been received full of the medicine on the previous day, and that she had swallowed its contents in the presence of her husband. He at once hurried for me and I arrived on the scene very shortly after the poison had been taken.

When seen by me she was in a condition of wild delirium, the pulse 150 and the pupils fully dilated. I at once injected a $\frac{1}{10}$ gr. apormorphine hypodermically, and succeeded almost immediately in producing free emesis. After that I injected $\frac{1}{4}$ grain of morphine and an hour later injected $\frac{1}{8}$ grain more of the same drug. The patient gradually improved and in the course of a few hours had regained her full consciousness. Beyond extreme dryness of the throat no other untoward symptoms occurred. In this case about two grains of the alkaloid must have been swallowed.

Case II.—On May 7th, 1895, about 5 p.m., I received an urgent call to see a little girl who had eaten a box of sugar-coated pills. The anxious father asked me to go at once as his child was "crazy and in convulsions." On my arrival at the house a few minutes later I found a small, delicate-looking child of nearly three years in a convulsion. Her arms and legs were extended and rigid, eyeballs protruded and rolling, pupils dilated to their fullest extent, skin dry and burning and covered from the tips of her toes to the ends of her fingers with a diffuse bright red rash. I asked the mother when the rash made its appearance, and she replied that she had not noticed it before. It resembled in appearance a characteristic scarlatina rash, and in the absence of other contradictory symptoms I would have had no hesitation in pronouncing it as such. It was of an equal degree of brightness over the whole surface of the body and disappeared momentarily on pressure. One could not have placed a five-cent piece over any part of the body where the rash was not present. The pulse was 160, weak and compressible, respiration hurried and shallow.

An empty pill box was shown to me which had contained fifteen small sugar-coated pills, which had been prescribed for a man who was suffering from night sweats. With this and the decided symp-

toms which were present I had no doubt that I had a case of atropine poisoning to deal with.

The child was delirious and unable to swallow, so I at once administered $\frac{1}{25}$ grain of apormorphine hypodermically, and by means of this agent and tickling the fauces with a feather produced free emesis in a few minutes. I then administered $\frac{1}{8}$ grain of morphine hypodermically and watched results for one hour. The convulsive seizures ceased by that time, but the child continued delirious, moaning and tearing at her clothes. Two hours after the administration of the morphine I injected $\frac{1}{16}$ grain hydrochlorate of pilocarpine. From that time the child gradually improved, the delirium passed away, the skin began to act and the pulse, which had been running at 160 per minute, came down to 95.

The poison was taken at 4 p.m., or one hour before I was called. At 10 p.m. the pupils had partly contracted, the redness of the skin had disappeared from the legs and arms and there was only slight remains of it visible on the trunk. Before leaving the house I catheterized the child, who had not voided urine since the morning.

On making my visit the following morning I found the child running around the house. Her pupils were slightly dilated and responded feebly to light. All signs of the rash had disappeared, and to all appearance the child was none the worse for her experience.

On enquiry of the druggist who had supplied the pills I found that each pill contained $\frac{1}{120}$ grain of atropine sulphate, so that in all $\frac{1}{8}$ grain of the alkaloid had been taken by the child.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Cyclical Albuminuria.

K. Osswald. "Cyklische Albuminuria und Nephritis (Klinik Riegel)." —*Zeitschrift für Klin. Medecin.* Band XXVI. Hft. 1 and 2: *Centralblatt für Innere Medicin.* No. 24. 1895.

The term cyclical albuminuria was first used by Pavy (1885) to designate cases of recurring albuminuria.

Osswald has observed seven such cases over lengthened periods and arrived at the conclusion that they were not of a functional character, but due to actual changes in the kidneys. This opinion is, however, not substantiated by any post-mortem evidence, as all the cases eventually recovered. It is founded on the presence of the general symptoms and the character of the urine. In all the cases reported, with one exception, the urine contained hyaline, fatty, and epithelial casts. The general symptoms present were anæmia, drowsiness, headache, palpitation of the heart, vertigo, epistaxis, gastro-intestinal catarrh, &c.

It was noticed that after rest in the horizontal position, the albumen disappeared from the urine, while active exercise had a marked effect in increasing the quantity.

It is pointed out that the early morning urine may be free from albumen, while that passed during the day may contain it in considerable quantities. For the detection of small quantities of albumen he recommends acetic acid and ferro-cyanide of potassium.

Tabes Dorsalis.

Déjerine. "The course of tabes dorsalis when complicated with optic nerve atrophy."—*La Med. Moderne,* March 20.

It is a well recognized fact that the course of tabes differs markedly in those cases where optic atrophy is present, as compared with the course of these cases where there is no atrophy of the disc. In the latter

the course is steadily progressive, ataxia supervening and increasing usually to such a degree as to render the patient helpless.

In cases where degeneration of the optic nerve takes place, it is uncommon to meet with marked ataxia or severe lightning pains, and both of these symptoms commonly lessen or entirely disappear when the atrophy has reached an extreme degree.

Déjerine recognizes three clinical types of tabes associated with optic nerve atrophy.

1. In the majority of such cases the optic atrophy supervenes at a period, longer or shorter, after the onset of the lightning pains, and locomotor ataxia never appears. As the optic nerve atrophy increases, the pains diminish.

2. In the second type, the blindness appears simultaneously with, instead of after, the lightning pains, and the tabetic symptoms develop with the blindness, but are arrested when the latter is complete.

3. In a few cases, the symptoms are almost entirely confined to the eye, the loss of the knee jerk being the only evidence that we may have, that the degenerative process has a wide range. Gowers says that lightning pains appear if these cases are sufficiently long observed.

According to Déjerine, the special features of tabetic optic nerve atrophy are : (1) It attacks the eyes successively ; (2) it is rapid in its course, being usually complete within a year or eighteen months ; (3) pupils are irregular in size, sometimes the condition is one of myosis, at other times of mydriasis : and again one may be contracted and the other dilated ; (4) though due to syphilis, anti-syphilitic treatment is of no value in arresting the atrophy.

The numerous forms of sensory disturbances met with in ordinary cases of tabes, are absent when optic nerve atrophy is present. No satisfactory explanation is forthcoming of the antagonistic action of optic nerve atrophy on the tabes. All that we can say is that in the one case the brunt of the disease falls upon the spinal cord and in the other on the cerebrum.

The Serum Treatment of Diphtheria.

Adolf Baginsky. "Zur serumtherapie der diphtherie im Kaiser und Kaiserin Friedrich Kinderkrankenhaus in Berlin."—*Berliner Klin. Wochenschrift*, Sept. 16, 1895.

In May last Baginsky published the results of the treatment of 525 cases of diphtheria by means of serum, the mortality being 15.6 per cent., as compared with 41.1 per cent. in cases treated by various means previous to the introduction of the antitoxin.

In the present communication, the results of the serum treatment

all cases of true diphtheria admitted from the 15th March to 31st of August, 224 in number, show that 203 left the hospital well, while 31 died, giving a mortality of 9.37 per cent.

Baginsky naturally concludes that the serum is a powerful agent for good in diphtheria. He is thoroughly convinced that its alleged untoward action has been much exaggerated. In a few cases of older children it was noticed that where the treatment was late in being employed, and where there was a tendency to septic infection, death followed from heart paralysis.

The cause of death in the twenty-one cases was as follows.

From Sepsis	in 2	cases.
" Sepsis and Heart Paralysis	in 7	"
" Heart Paralysis	in 3	"
" Descending Croup	in 4	"
" Pneumonia	in 2	"
" Cholera Infantum	in 2	"
" Sudden Collapse	in 1	case.

Baginsky's results are very encouraging and should be the means of stimulating those who have the opportunities of treating cases of diphtheria in giving the method a thorough trial.

There surely now can be no question that the serum treatment of diphtheria has established itself as the most valuable of all our agencies used to combat this dread disease. *James Stewart.*

Thyroidin and Thyroidismus,

Becker. "Beitrag zur thyreoidin-wirkung."

Otto Lanz. "Ueber thyreodismus."—*Deutsche Medicinische Wochenschrift*, Sept. 12, 1895.

A review of these two articles serves to present some of the recent theories concerning the effects of the active principle of the thyroid gland, as well as to suggest the necessity of close observation and care in the administration of this agent.

Dr. Becker, of Gensingen, under the above heading records an interesting observation made with this drug and draws therefrom conclusions which need time and experiment to establish fully.

The recommendation of the use of thyroidin has always been made with caution in order to avoid the untoward results often following too full doses. Enumerated they are loss of appetite, sleeplessness, tremors, high state of nervousness, glycosuria, albuminuria and cardiac disturbance, sometimes leading to death. From such results in man, as well as from similar results obtained in experiments on animals the French authorities have lately concluded that the extract of thyroid gland is a dangerous poison and especially a cardiac poison.

To combat this idea Becker recalls the observations of Leichten-

stern who, by the careful administration of this agent in 162 cases, saw no permanent ill effects, and those which did occur were transitory, relieved with setting aside of the drug. He (Leichtenstern) claims that the cause of these symptoms, termed "thyroidismus," does not lie in the agent itself, but that by means of its influence on metabolism products are formed inducing the condition, and this view seems favoured by reason of the frequency of this thyroidism in proportion to the activity of this drug in the system. Now Becker strengthens this view, materially, we think, by his observations, which may be briefly reviewed.

A child aged $2\frac{1}{2}$ years, when alone one day, took about ninety tablets of thyroidin, each containing 0.3 grammes. They were supplied by a firm from which a reliable and active preparation of the thyroid gland was obtained, and thus they were not regarded as inert. None were passed undissolved with the stools. The child was carefully watched from the day of taking tablets, July 24th, and was weighed from time to time until August 30th. In body weight, in pulse, in respirations and in urine no changes were observed. The author classes this along with those cases which do not react to thyroid extract. In some cases of obesity this treatment proves ineffectual, and it is noteworthy that in such cases toxic manifestations or thyroidismus are conspicuously absent.

Dr. Otto Lanz, of Berne, gives a lengthy account of numerous experiments on animals and men with different preparations of thyroid gland. Into the details of this article we need not enter. Suffice it to say respecting the experiments from which he draws his conclusions that they were performed on mice, guineapigs, dogs, rabbits, cats and men, with different preparations of the gland, administered by the mouth, and in a few instances by injection subcutaneously.

He sums up his results in the following words:

1. Thyroidismus has its origin in two factors: (*a*) The poisonous effects following consumption of decomposed glandular elements. (*b*) The specific action of the gland itself, *i.e.*, thyroidismus in the true sense.

2. Thyroidismus manifests itself in a variable intensity, according to the glandular preparation and the animal subjected thereto.

3. The toxic principle which is active in thyroidismus seems to be capable of producing its effects upon the young, *in utero*, or when at the breast.

Further, the author suggests the term *hyperthyrosis* as a more suitable term for the condition now designated by *thyroidismus*.

Rickets and obesity bear a direct relation to the function of the thyroid gland and are regarded as manifestations of what the author speaks of under the term *hypothyrosis*. *W. F. Hamilton.*

Operative Treatment of Intestinal Perforation in Typhoid.

THOMPSON, J. E. "Operative treatment of intestinal perforation resulting from typhoid fever."—*The Medical Chronicle*, Sept., 1895.

In a very interesting article, interesting alike to the physician and surgeon, the writer discusses the operative treatment of intestinal perforation in typhoid fever. The subject, he says has occupied his attention during the last few years, owing to the fact that he had operated on two cases, in neither of which was the diagnosis suspected beforehand. In the first, an engineer on a ship, symptoms of peritonitis set in suddenly after a very indefinite history of previous illness. Operative interference was decided on as offering the only chance of recovery. After some difficulty the cause of the peritonitis, a perforation in the ileum twelve inches above the ileo-cæcal valve, was found and sutured. The patient died twelve hours afterwards, and the post-mortem revealed the characteristic lesions of typhoid. In the second, a somewhat similar case, the patient only lived eight hours.

"In typhoid fever, perforation," says the writer, "although easily diagnosed in the majority of cases, may be attended by so few symptoms that we may completely overlook it. When the signal symptoms, intense sudden abdominal pain, fall of temperature, collapse, and quick onset of tympanites, followed by other evidences of peritonitis, are present we cannot fail to make a diagnosis."

The passage of gas into the peritoneal cavity may occur quickly or slowly. When it leaks quickly through the rent liver dulness may be obliterated in a few hours. If it leaks out slowly the liver dulness may persist, tympany may be ill-defined, and the ensuing peritonitis may be comparatively localized. Obliteration of the liver dulness he considers as anything but an absolute sign.

Is the operation justifiable? The writer's answer is an unhesitating Yes, if there seem to be the slightest chance of recovery. Spontaneous recovery does in rare cases follow perforation, but such should be regarded as mere pathological curiosities, and should in no way guide us in determining a line of treatment. Spontaneous recovery may similarly follow acute perforative appendicitis, but no surgeon would decline to interfere because nature had so far indicated a method of self-cure. If there is the slightest chance of recovery no surgeon has a right to refuse to give his patient a ray of hope. No thought of good statistics should enter a conscientious man's mind at such a juncture, but he should straightway proceed to the only course at his disposal, viz., removal of the extravasated material."

The writer presents an analysis of twenty-three cases reported up to the present. Of these there have been only four recoveries. Three of these he thinks doubtful, leaving so far only one unequivocal case of recovery, Van Hook's (*Med. News*, Vol. LIX., p. 591), on record.

A. D Blackader.

Surgery.

Orchidomeningitis Calcificans.

Roswell Park. "Calcification of the tunica vaginalis as a complication of old hydrocele."—*Journal Cutaneous and Genito-Urinary Diseases*, September, 1895.

Dr. Park begins his paper by briefly relating the clinical history of a man aged 63, who had a tumour of one testicle, which on examination was found to be large, firm and unyielding. It had been of the same size for six or eight years, and had existed in a smaller shape for a much longer time. The man, in fact, was a monomaniac, the whole subject of his thought and worry being this enlargement of the testicle. The man urged its removal, and did not wish to take an anæsthetic.

Dr. Park removed the testicle in the usual way without an anæsthetic, the man giving little or no indication of pain. After the operation there was a rapid and complete restoration to both mental and physical health. The tumour was the size of a small ostrich egg. The walls were everywhere tough and gave one the sensation of an egg-shell. Inside of the cavity there were some eight ounces of fluid, which had evidently at one time been pus. Whether the man had ever been tapped previously, or what the occasion for suppuration, was not determined. The inner surface of the membrane was lined with the ordinary pyophylactic membrane and was rough and irregular. On one side and in its proper place were the remains of the testicle, whose walls were much thickened, but not calcareous. In this there were no evidences of destructive disease. The epididymus was also much thickened, especially in its surfaces, but otherwise did not seem materially diseased.

At the lower end of the enlarged sac wall were found two cysts or encapsulated collections containing cheesy material consisting mostly of cholesterin crystals and fat.

One sees such changes most often in the pericardium and pleura, but no serous membrane of the body seems absolutely exempt.

Sir Astley Cooper was one of the first writers to call attention to this condition, which he did in his *Observations on the Structure and Disease of the Testis* in 1845. After speaking of this change taking place in other tissues he goes on to say:

"The tunica vaginalis occasionally undergoes this change, and a

portion of that membrane thus diseased was given me by Mr. Warner, surgeon of Guy's Hospital, forty years ago. He operated on a person who had long had a hydrocele. He found his knife resisted by earthy matter in one part of the tunic, but he succeeded in removing it. I dried the portion which he removed and found several deposits of earth in it. I showed it in an evening's lecture on surgery to Mr. Hunter, who, after examining it, laughingly said, 'I thank you, sir,' and put it in his pocket."

The tunica albuginea, which is a tendinous structure, is more frequently affected with this complaint than the tunica vaginalis. Many surgeons have reported similar cases.

Address in Surgery.

Jonathan Hutchinson. British Medical Association; Sixty-third Annual Meeting, held in London, July 30th, 31st, August 1st, 2nd and 3rd.—*British Medical Journal*, August 3rd, 1895.

In this address Mr. Hutchinson reviews in his wonderfully clear style the past one hundred years of surgical progress. The history of ovariotomy and the use of the clamp is particularly interesting.

In speaking of lithotomy and litholopaxy Mr. Hutchinson showed a spirit worthy of emulation, and it cannot be better expressed than in his own words: "When, however, Bigelow taught us how to complete the operation at one sitting and to remove all the fragments, I saw almost with regret that lithotomy must henceforth give place. My fingers, however, needed practice in the new operation, and I found to my chagrin that I could not do it so quickly and neatly as those who made it a special pursuit. One patient unfortunately died and I felt sorry that I had not cut him. I determined that I would not do litholapaxy *propriâ manu* again, but that I would watch the results in the hands of a specialist friend. From that date onwards I have always on discovering the presence of a stone of a size not demanding lithotomy transferred the patient to my friend. The result has been that during a long series of years we have had not a single death, and what is almost of equal importance, not a single case needing a second operation."

Mr. Hutchinson then spoke of the great increase of operative surgery and the vastly improved prognosis in operations for malignant disease, due to our ability to make an early and positive diagnosis and to our improved methods of operating.

For example, Mr. Hutchinson thinks that "No one ought now to die of cancer of the tongue, for nothing except neglect of the early stage can bring about such a result. It is the doctrine of 'local origin

of cancer,' of a 'precancerous stage,' which has placed us in this position. In former days no operations were, with the rarest exceptions, performed for this disease; and if they were it was in the late stage when, to use the forcible expression of Mr. Sharp 'the procedure was both dreadful in the doing and melancholy in the event.' Cancer of the tongue was hardly ever diagnosed until it was too late to operate. One of our most popular surgical manuals taught that enlargement of the lymphatic glands in the latter afforded one of the best means of distinguishing between syphilitic and cancerous disease. We should now regard it as evidence of almost culpable delay, and as implying that the case had advanced too far for surgical aid. What hinders that all cases of cancer of the tongue should be submitted to operation in the earliest stage? Nothing except defective diagnostic capacity on the part of members of our own profession. The fault is but rarely on the part of the patient. I never yet met with a patient to whom it was kindly yet confidently told 'You have got cancer,' who did not gladly and without delay assent to what was recommended."

A similar hopeful view is taken concerning cancer of the breast:

"There was never anything formidable in the performance of an excision of the breast, but no case was ever operated upon until the diagnosis was as clear as daylight and until, in but too many instances, the disease was far advanced. The class of symptoms by which our text-books taught us as students to recognize cancer of the breast were for the most part as in the case of the tongue, those present only in the late stage. Now we rely upon an entirely different set of symptoms. We now trust solely to the trained finger to recognize the character of the induration, and we lay down an inexorable precept that if there be any reasonable doubt the breast should be removed. Our patients, as a rule, accede without much reluctance to our recommendations, for they know from general report that the modern operation is a mere trifle. The result of this change of practice is that the statistics of cancer of the breast must be rewritten. Those collected three or four decades ago are not in the least applicable to our present results. Permanent recoveries after removal of the breast for scirrhus, as after those of part of the tongue for epithelioma, are now common in the practice of all surgeons."

G. E. Armstrong.

Midwifery and Diseases of Women.

The Pathology and Treatment of Postpartum Hæmorrhage.

Bokelmann. "Zur Pathologie und Therapie der Nachgeburtsblutungen."—*Monatschrift f. Geburtshülfe und Gynakologie*, August, 1895.

There is no subject of more practical interest to the obstetrician than postpartum hæmorrhage, since there is probably no other emergency which tests more severely his general resource, coolness, decision and skill. It is impossible to treat hæmorrhage rationally and effectively without having clear ideas respecting its cause; but, unfortunately, opinions are divided regarding its pathology and treatment and no definite line of practice has been agreed upon. As a result of this confusion of ideas, notwithstanding modern improvements in technique, death still occurs from postpartum hæmorrhage more frequently than it ought to do, and many lives are lost which might have been saved by prompt and judicious treatment. On the Continent, during the past two years, a vigorous controversy has been going on between Veit, Fehling, Leopold, Dührssen, Fritsch, Schauta, Heitzmann and others, respecting the causes and treatment of postpartum hæmorrhage, which culminated in a discussion before the Obstetrical and Gynæcological Society of Berlin, in July, 1894. The chief points in dispute were (1) the relative frequency of *traumatism* and *atony of the uterus* as causes of hæmorrhage, and (2) the necessity or advisability of manual separation of the placenta for the arrest of hæmorrhage or on account of retention. Veit is much impressed with the dangers attendant upon manual separation and the heedless way in which the operation is too often done. Olshausen considers it one of the most dangerous of obstetrical operations, on account of the impossibility of sterilizing the vagina completely. Veit maintains that the frequency and importance of atony as a cause of postpartum hæmorrhage is greatly over-estimated, and believes that fatal hæmorrhage is generally due to traumatism. He has scarcely ever seen a case of threatening dangerous atony, and does not think that the prognosis of atony is improved by the manual removal of the placenta. The importance of a differential diagnosis between atony and trauma necessitates a distinction between hæmorrhage occurring *before* and *after* the separation and expulsion of the placenta. In the first case he holds that

bleeding can only occur from traumatism or the separation of the placenta according to Matthews-Duncan's method. Atony can only be held accountable for hæmorrhage when a large retro-placental clot has formed or when bleeding begins after the expulsion of the placenta. As regards treatment, he holds that during the first few hours after a full term labour it is never necessary to pass the hand into the uterus on account of atony, and that the manual separation of the placenta is for the most part a superfluous operation. Handling the genital canal is necessary only in cases of traumatism, and then the proper treatment is to suture immediately. Even in abnormally severe hæmorrhage during the third stage he condemns manual removal of the placenta. The hæmorrhage at that time indicates a partial separation of the placenta, which may be completed by vigorous friction of the fundus. The uterus is thereby stimulated to contract and retract, thus peeling off the placenta and stopping hæmorrhage by closing the mouths of the bleeding vessels. If the placenta remain adherent for a long time he does not admit that the cause is to be found in the existence of true adhesions between the placenta and uterine wall, which require to be broken up artificially. The tough bands of adhesions so often described in such cases as making the separation of the placenta so difficult are not considered by Veit to be true adhesions at all, but only show that the placenta is being detached through the placental tissue and not through the decidual layer, as it ought to be. He thinks that atony is the cause of placental retention, and that repeated frictions would succeed in time in stimulating the uterine muscle to activity, and the placenta would be separated then naturally and completely. He does not believe in the immediate removal of retained bits of placenta or membranes, but prefers waiting for the appearance of hæmorrhage or other symptoms subsequently. In the majority of cases the uterus separates and casts off these retained fragments without trouble. He condemns bimanual compression of the uterus through the vagina and abdominal wall and considers Dührssen's intra-uterine tampon uncertain and not free from danger. He is an advocate of the hot vaginal and intra-uterine douche. In short his treatment of postpartum hæmorrhage consists in vigorous and, if necessary, long-continued frictions and kneading of the fundus, together with hot douching in certain conditions; in traumatism, immediate suture. Ergot is also of great value in some cases. Finally he lays great stress upon prophylaxis, which consists in the proper management of the third stage of labour, carefully watching for and guarding against deficient uterine action.

Fehling energetically combats Veit's opinions and practice, claiming

that hæmorrhage from atony is six times as frequent as from trauma, and denying that hæmorrhage before the expulsion of the placenta is always due to the Matthews-Duncan method of separation, if trauma can be excluded. Such a sharp distinction cannot be made practically between Schultze's and Duncan's method. He does not think that Veit's rules for practice will always succeed, and moreover they may lead to bad results. He does not see why it is allowable to introduce the hand into the parturient canal and freely handle the cervix and vagina exploring the cellular tissue of the parametrium while searching for and suturing traumatisms, while it is forbidden to separate the placenta by hand for fear of septic infection. In five years he has had occasion to remove the placenta manually in 67 cases ; 70 per cent of these patients recovered without febrile symptoms, and only 2 died, but they were feverish when they came under observation. He denies that the placenta can be removed in every case by kneading and external pressure, and believes that too long waiting may endanger or destroy the woman's life, He considers the most dangerous part of Veit's practice to be his leaving retained bits of placenta *in utero* till the onset of hæmorrhage or other symptoms subsequently. He strongly urges the removal of such retained pieces at once, for as long as they are *in utero* one never knows when a severe hæmorrhage may occur ; moreover, the conditions are less favourable if they have to be removed later. In the discussion before the Berlin Obstetrical Society, opinions were divided as to the relative frequency of atony and trauma as causes of hæmorrhage, but all agreed that the tendency has been to overestimate the frequency of atonic hæmorrhage. Dührssen laid stress upon the importance of avoiding or minimising large loss of blood in the newly delivered, on account of the obstinate anæmia and debility which are apt to result. All the speakers dwelt upon the necessity of carefully disinfecting the *genital tract* as well as the operator's *hands* before attempting to separate the placenta manually. Dührssen said that the patient would run less risk from the hæmorrhage than from the introduction into the uterus of an infected hand, but he also pointed out that a non-disinfected hand is not necessarily an infecting hand. The general consensus of opinion was against Veit's practice of leaving retained bits of placenta *in utero*. As the result of this discussion Veit modifies his views considerably, and it was finally pretty well agreed that the manual separation of the placenta is justifiable when other measures have failed, but that the operation should not be done hastily or without careful disinfection.

The discussion is sure to have a good effect, and Veit has done good

service by calling attention to the reckless way in which the manual separation of the placenta has been undertaken of late years, and by pointing out the risks of the operation and the success which follows a more conservative treatment. Unquestionably hæmorrhage and retention of the placenta would be far less common if obstetricians would take more pains in the management of the third stage of labor. Before resorting to the manual separation of the placenta for hæmorrhage during the third stage, Fritsch's method should be given a fair trial. With one hand the vulva is seized between the thumb and four fingers in such a way as to close it completely. The other hand grasping the fundus upon the upper and posterior surface, presses the uterus forcibly down into the pelvis. Thus the whole external and internal genital organs are held between the two hands, and combined pressure is exerted upward and downward. The uterine muscle is stimulated to contract and internal hæmorrhage is controlled, while the genital canal from cervix to vulva is also forcibly compressed and bleeding from fissures and tears is checked. A pad of absorbent cotton, the size of the fist, may be laid upon the vulva to give the external compressing hand greater purchase. By this method severe hæmorrhages may be controlled without risk of infection from the operator's hands, even though the source of bleeding has not been made out ; it is therefore a useful manœuvre in sudden hæmorrhage occurring in anæmic delicate women.

J. C. Cameron.

Pharmacology and Therapeutics.

Diseases of the Heart.

Bramwell, Byron. "The treatment of the diseases of the heart."—*Edinburgh Medical Journal*, May, 1895.

Balfour, G. W. "Cardiac therapeutics."—*Edinburgh Medical Journal*, June, 1895.

In these two very interesting papers the discussion on cardiac therapeutics before the Medico-Chirurgical Society of Edinburgh, which was opened by Dr. Fraser's paper (*Mont. Med. Jour.*, July, 1895, p. 34), is renewed. Dr. Bramwell devotes his paper to a consideration of the general principles which should underlie the treatment of heart cases. The first essential is a correct diagnosis which involves an opinion as to (1) the nature, severity and extent of the lesion, and whether progressive or stationary: (2) the condition of the cardiac muscle: (3) the condition of the arteries; (4) the conditions of tissues and organs as a whole; (5) the special peculiarities and surroundings of the individual. Especially is the condition of the cardiac muscle the key to cardiac therapeutics, but its exact determination is often very difficult. In trying to arrive at it, we must study (1) the size of the heart; (2) whether hypertrophy or dilatation is predominant; (3) the way in which the heart is acting and contracting, whether forcibly, irregularly, and the like; (4) the condition of the peripheral arterial, venous, and capillary circulation; (5) the way in which the circulation is carried on as indicated by absence or presence of dyspnœa, palpitations, cardiac pain, &c., during rest and under strain; (6) the way in which the heart muscle responds to tonic remedies.

In many forms of cardiac disease, Dr. Bramwell considers rest as the most important means of treatment at our command. It is indicated in acute endocarditis; in all cases in which myocarditis is suspected; in myocardial degeneration (fatty and fibroid); in pulmonary lesions with an engorged condition of the right heart; in valvular lesions with decided breakdown of compensation; in cases of angina pectoris in which there is reason to suspect organic disease; and in all severe cases of senile degeneration of the heart.

Exercise, on the other hand, is a very valuable means of treatment in many cardiac conditions. Especially in neurotic affections, in fatty

infiltration, in gouty conditions where there are no marked degenerative changes, and in many valvular lesions so long as the myocardium is fairly healthy, and in some conditions of dilatation, associated with fatty infiltration, or the result of such conditions as excessive beer drinking, but in which we have no marked degree of myocardial degeneration. In many cases of aortic and mitral disease, in the less severe forms of senile heart and of myocardial degeneration, moderate, and judiciously regulated walking is invaluable, so long as the compensation is well maintained. By exercise, we promote the general health, and stimulate the peripheral circulation, preventing stasis and engorgement.

Dr. Bramwell also attaches much importance to sustaining the mental tone of the patient. In many cardiac cases there is, he says, no tonic more efficacious than a favourable opinion confidently expressed.

So long as compensation is well maintained the most powerful cardiac tonics, such as digitalis and strophanthus, are unnecessary and may be harmful. In temporary breakdowns of compensation, the enfeebled right heart may be aided by digitalis, strophanthus, strychnine, alcohol, etc., and, if greatly engorged, the strain may be relieved by venesection.

After breakdown of compensation, the treatment in cardiac cases of all kinds has to be guided by the opinion as to the nature of the lesion and the condition of the heart muscle.

Dr. Bramwell, towards the close of his paper, refers to some individual lesions and their appropriate treatment.

Fatty degeneration, due to deficiency of hæmoglobin, as the result of anæmia, demands treatment with iron or arsenic; when due to pernicious anæmia there is no remedy like arsenic. In fatty degeneration due to disease of the coronary arteries, arsenic and strychnine, alone or in combination, are to be preferred to digitalis or strophanthus. In cases of fatty infiltration and flabby heart, careful regulation of the bowels, fresh air, and carefully regulated exercise, together with arsenic and strychnine, are the best measures to employ.

In cases of senile, debilitated and fatty hearts, and in cases of mitral regurgitation with high blood pressure and constricted vessels, careful regulation of the diet, distilled water, salicylate of soda, and arsenic and strychnine may be employed. Iodide of potassium is often advantageous. Where a cardiac tonic is required, strophanthus is probably preferable to digitalis, as Prof. Fraser claims that it acts without constricting the peripheral arteries.

In cases of chronic myocarditis and fibroid degeneration rest is

essential. Digitalis, arsenic, strychnine and iodide of potassium may all do good.

In cases of advanced valvular disease with defective compensation, large doses of digitalis or strophanthus should be employed.

In angina pectoris, with high blood tension, nitroglycerine or amyl nitrite are effective, but in cases of advanced cardiac degeneration, or free aortic regurgitation, with a soft pulse, they are useless, or even dangerous. Here diffusible stimulants and morphia injections are the most efficient remedies.

As to the mechanical removal of dropsical effusions, beneficial effects may be obtained by repeated tappings in some cases of ascites due to organic cardiac disease. In cases of hydrothorax the results have, as a rule, been merely temporary and often unsatisfactory. He rarely resorts to puncturing the legs or the scrotum until other measures have failed to remove or lessen the œdema. In his experience draining the subcutaneous tissues has rarely been attended with marked or lasting benefit. Massage he thinks a more useful remedy than tapping in many cases: it aids the venous and lymphatic return, and quickens the circulation in the muscular and peripheral tissues of the body. It is also of use in many cases in which, owing to the nature of the lesion, ordinary muscular exercise is contra-indicated. Venesection is undoubtedly, he says, valuable in many cases in which the right heart is greatly distended and engorged, and it is particularly useful where the engorgement depends upon temporary lung complications superadded to mitral disease. Dry cupping is very useful for the relief of congestion of the lungs and other pulmonary and kidney complications.

With regard to the soporifics, the most useful are chloralamide, paraldehyde and morphine. In cardiac cases sulphonal is much less certain in its action than chloralamide, and in grave cardiac affections he has almost entirely given up the use of chloral hydrate, on account of the marked depression which it is apt to produce. Paraldehyde is especially useful in those cases where there is bronchitis, and in which morphine is contra-indicated. After the breakdown of compensation, and in the ultimate restlessness in cardiac cases, small and frequently repeated doses of morphine are often invaluable. It is also of much service in some cases of angina pectoris where nitrite of amyl fails to give relief or is contra-indicated; for example, where the blood pressure is low and where there is free aortic regurgitation. Morphine should never be given where there is œdema of the lungs or much bronchial secretion, for disastrous results have followed its administration under those circumstances.

Dr. Balfour thinks that the prominent symptom complained of is often a guide to the nature of the case and an indication for treatment, but the physician must endeavour to understand what the symptom means, and its connection with other phenomena present. He considers it impossible to ascertain during life whether the coronaries are atheromatous or not, or whether the heart is fatty or not. Where cardiac compensation is incomplete, rest is paramount. Excessive exercise tends to promote irremediable failure of the heart. Diet is of extreme importance.

Drugs of use in cardiac cases are not numerous, but are very valuable. Strychnine is of much value where the cardiac energy is defective, and its use may be continued a long time. Five minims of the solution of strychnine every twelve hours is about the largest safe dose for continuous administration.

Digitalis is of paramount importance, improving the nutrition of the myocardium, contracting dilated ventricles and removing dropsy. One grain of powdered leaves every twelve or twenty-four hours is usually sufficient. Larger doses may be given in cases of flabby dilated hearts, but require watching. Nitrites and iodide of potassium may be used to lower blood pressure and allow digitalis to act beneficially where it might otherwise do harm.

Action of Nitrate of Silver.

Tweedy. "A case of argyria, with a note on the therapeutic value of silver nitrate."—*The Dublin Journal of Medical Science*, July, 1895.

The writer gives details of a case of locomotor ataxia, which first came under his observation in 1871. The patient was then suffering from a well-marked type of the disease, and among other symptoms complained of pronounced girdle and lightning pains, manifested the characteristic gait, and was unable to stand erect with closed eyes. He was ordered $\frac{1}{3}$ gr. of nitrate of silver three times daily in a pill. The pills were continued, with short interruptions, during his stay of six weeks in the hospital, and afterwards with tolerable regularity for two years. On his reappearance in the hospital in 1873, there was marked improvement in all his symptoms, so the drug was taken at intervals till 1876. At this time there was some return of the ataxic symptoms and iodide of potassium was prescribed, but with little success, and the patient fell back on the silver nitrate. He was then lost sight of for six years, when he turned up in Steeven's Hospital, suffering with an eczema of the legs. All the ataxic symptoms had now

disappeared, but he occasionally suffered from lightning pains, accompanied by sickness of the stomach, and on each occasion obtained relief from a course of the silver pills. General argyria had now distinctly manifested itself. At the close of 1894 he came once again to show himself to Dr. Tweedy. Except for the inevitable signs of old age his health was good. It was then more than ten years since he had shown any definite symptoms of ataxia, and Dr. Tweedy considered that the discoloration of his skin had not been an extravagant price to pay for the benefits he had derived from the use of the drug.

After referring to other recent cases of argyria, Dr. Tweedy says that all these cases serve to emphasize the fact that silver salts, if introduced into the body, are eliminated from it to a very slight extent, if at all. He quotes the following conclusions arrived at by Fraschetti[1] in regard to argyria:

1. All silver preparations give rise to argyria; a local deposit may even occur after their external employment.

2. Reduction of the silver salts administered takes place in the stomach, and afterwards in the intestinal canal, tending to the separation of the metal.

3. Silver finds its way into the organs through the lymphatics.

4. It is not eliminated by the urinary organs or by the intestines.

5. It does not as a rule produce any material effect upon the health.

The quantity of silver requisite to produce argyria must be subject to considerable variation. Krahmer[2] says the smallest quantity that has produced it is 450 grains, but in Riemer's case 1,740 grains had been taken before any staining of the skin appeared. An acute form of the disease has been recently described by Olshausen,[3] who relates a case in which a large open wound had been treated with a one per cent. solution, when the mucous membrane of the cheeks, gums and under surface of the tongue became stained of a blue-black colour, and eight days later the patient died of exhaustion from diarrhœa.

Dr. Tweedy concludes that while no precautions can guard against the staining that follows the prolonged use of nitrate of silver, yet the general health is not in the least affected.

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[1] *Deutsche Med. Zeit.*, Aug. 22, 1892.

[2] *Das Silber als Arznei Mittel*, Halle, 1845, p. 153.

[3] *Deut. Med. Woch.*, 1893, No. 47.

The Treatment of Whooping-Cough.

S. Russell Wells and L. Gerard Carrè. "The therapeutical value of cocaine in whooping-cough."—*The Lancet*, June 8, 1895.

Fischer. "The value of quinine in whooping-cough."—*New York Medical Journal*, May 11, 1895.

Johnston, W. W. "On whooping cough, its great fatality, and the necessity for isolation and rest in its treatment."—*Archives of Pediatrics*, April, 1895.

There are few diseases for which more diverse methods of treatment or a larger number of remedies have been recommended than for pertussis, notwithstanding which, it must be confessed, our success is still very often problematical. The value of quinine, both when administered internally and applied locally, has been recognized by the profession for some time past. Administered as a dry powder by the mouth we have employed it now for many years and are satisfied of its value. Dr. Fischer writes enthusiastically of his success with it, and although we would ourselves speak more reservedly of our success with it than he does, yet we cordially agree with him in recommending it as a valuable remedy which, given in sufficient doses (one to six grains in powder three times a day), exercises apparently a specific influence in the mouth and pharynx, diminishes the number and violence of the attacks, and apparently shortens the course of the disease. It appears also to influence very favourably any bronchitis or pneumonia which may complicate an attack. Dr. Fischer recommends it to be given in solution with a little hydrochloric acid. In our hands we have found it much more readily taken when given as a powder dry on the tongue, associated with powdered extract of liquorice, and swallowed with a little coffee or milk.

Drs. Wells and Carrè claim excellent results from the internal use of small doses of cocaine. Their experience in the out-patient department of the Great Ormond Street Hospital for Sick Children has been a large one. These writers consider that this affection is due to a microbe, not as yet certainly determined, which has a local habitat in the respiratory mucous membrane, and think that the catarrhal stage should be regarded as the period of microbic activity, and the whooping stage as due to the after-effects of a poison generated by the microbe. The best method of treatment would consequently be the exhibition, during the early stage, of some drug which would destroy the microbe and counteract the effect of the poison. This, they think,

is for the present impracticable, owing to imperfect knowledge on our part, so they look for a drug to antagonize the effect of the poison in its later stages. This drug should stimulate nerves antagonistic in action to those involved, and lessen the sensibility of the peripheral terminations of the nerves passing from the respiratory and gastric mucous membranes to the medulla. Such a drug they think they find in hydrochlorate of cocaine, which they recommend, not to be applied locally, but to be given internally in doses based on the standard of one grain for an adult three or four times a day. In this way they have treated 323 cases in the out-patient department of the Great Ormond Street Hospital for Sick Children. The cases came under observation during the most unfavourable months of the year, namely, the late autumn and early winter of 1894, when one would expect the course of the disease to be as long or as unfavourable as it ever is. Under this treatment the average duration of the disease was only three weeks, although severe cases were more protracted. The child, as a rule, after commencing treatment showed marked improvement in its general condition : vomiting was arrested, anorexia disappeared, the cough became less frequent, and sleep improved. No marked evil effects have been noticed by the writers to follow the use of the drug. Slight relaxation of the bowels appeared in some cases, but this they did not regard as having an untoward effect on the course of the disease. In most cases the children were kept under observation long after the symptoms of pertussis had ceased, so as to enable the observers to speak with certainty of the permanency of the cure.

Dr. Johnston directs attention to the great fatality of this disease, as shown by the mortality records of England, Germany and the larger cities of the United States, in all of which it takes rank as second only to scarlet fever as a cause of death in children. While regarding it as a specific disease due to a micro-organism, he thinks that in the effort to cure the disease by internal and local specific remedies, the most important indications of treatment have been overlooked. These are the feeble and dilated heart due to mechanical overstrain, and the resulting disturbed state of the circulation in the brain and lungs favouring cerebral and pulmonary congestion. Specific methods of treatment have thus far been unsuccessful in aborting or even modifying the character of the attack, and, until they prove more efficacious, an important principle of treatment should be to give the heart assistance by relieving it of unnecessary work. Rest, therefore, becomes a cardinal point in treatment, and he strongly pleads that the child should be kept in one room, and at rest in bed, in all cases where the paroxysms are severe or frequent. Free ventilation

and fresh air should be secured as far as possible in the sick room, but the outdoor fresh air methods of treating cases he considers unscientific ; increasing risks both for the patient and the public. This seclusion and rest should be absolute so long as the paroxysmal cough is, by its frequency or severity, a source of danger.

He claims for this simple procedure a distinct amelioration of the several stages of the disease, while the danger of infection for others is reduced to a minimum.

A. D. Blackader.

Pathology.

On Abdominal Incision in Peritoneal Tuberculosis.

JORDAN. "Ueber den Heilungsvorgang bei der peritonitis tuberculosa nach Laparatomie."—*Beitr. f. Klin. Chirurgie.* XIII., part 3. 1895.

STCHÉGOLEFF. "Recherches experimentales sur l'influence de la laparatomie sur le péritonite tuberculeuse."—*Archives de Méd. Experiment. et de l'Anat. Pathol.* 1894. P. 649.

Not a little attention has been paid of late to the results of simple laparatomy in bringing about arrest of tubercular peritonitis. Two of the more recent papers upon the subject may here be briefly noticed.

Jordan records a case of tuberculosis sicca of the peritoneum arrested by simple incision. He has collected together altogether fourteen cases, in which opening of the abdomen has been recorded as having induced either what may be termed anatomical healing of, or distinct improvement in, peritoneal tuberculosis. Discussing the numerous theories that have been advanced to explain the good effects produced, he concludes that not one is satisfactory; the riddle remains unsolved. Yet there is one indication given by a study of the cases brought together which, it seems to us, points in the direction in which the solution is to be found. We refer to the fact that the majority of cases that have been successful afford a history of repeated abdominal incision. It would appear, therefore, that the reaction leading to retrogression of the tubercular process is of temporary duration, and that the best results are obtainable by inducing it frequently. Further, there is an entire absence of proof that the tubercle bacilli are attenuated or enfeebled by the very slight alteration in their environment set up at the moment of operation. On the contrary, we may be said to know well that a change of environment of this extent exerts no perceptible action upon the virulence of the bacilli. We can therefore go further and state that where laparatomy is successful in arresting the process, the reaction must be of the nature of an increased resistence *on the part of the tissues* to the growth of the tubercle bacilli, and, presumably, to the effects of the products elaborated in the process of growth. It is beyond this point that we enter into doubtful territory, although Stchégoleff's researches open the way a little further.

This observer employed dogs—animals which are susceptible to tuberculosis, and in which small quantities of bacilli obtained from tuberculous patients induce (when inoculated into the abdominal cavity) a peritonitis closely resembling tubercular peritonitis in the human subject. Twelve animals so inoculated and subjected to no other treatment, died of general tuberculosis in from twenty-two to thirty-four days. Ten other dogs, inoculated in a similar manner, underwent abdominal incision at various periods. All of these survived the controls by periods varying from one to three weeks, and four of them gained in weight and showed other evidences of recovery. Of these one was still alive four months after the operation, the other three were killed 52, 70 and 85 days respectively after laparatomy.

In these experiments it is to be noticed that abdominal incision was only performed once in each case, and we would suggest that the incomplete success obtained may in part have been due to this fact. Stchégoleff leaves this possibility out of account and ascribes the deaths that occurred to the fact that the disease had already become too far advanced to be arrested. The dog killed 85 days after the operation showed not a sign of tuberculosis; the mesenteric tubercles seen at the time of abdominal incision had all disappeared; at most here and there fibroid thickenings of the peritoneum were recognizable. A guinea pig inoculated with a portion of the omentum removed at the autopsy remained in perfect health. This dog had been operated upon 12 days after inoculation with the tubercle bacilli. The two other dogs killed at the end of 52 and 70 days respectively had been operated upon 28 days after inoculation. In them he found complete retrogression of the abdominal tuberculosis; there were, however, tubercles in the lungs and liver. Whether the generalization of the process had occurred antecedent to the operation (which is not improbable), or not, must remain an open question.

The anatomical observations of the greatest importance brought out by Stchégoleff is that whereas in the control animals there was not a sign of adhesive inflammation, adhesions were present in all those that had undergone operation. Arrest of the tubercular process therefore, whether partial or complete, was accompanied by inflammation. Associated with this there was found a fibroid condition of the tubercles. What was the immediate cause of the inflammation the author will not venture to state positively. Yet this, we think, may be affirmed with safety, that the inflammatory reaction following upon the opening of the abdomen and exposure of the viscera led coincidently to the modification in the tubercles.

We are too apt to confound inflammation with its cause, and, in con-

sidering this process, to lay stress upon injury and injured state of the tissues which precede and lead up to inflammation, and not sufficient stress upon the attempt at repair, which is the essence of the inflammatory process. Thus we almost inevitably regard a simple peritonitis such as that following upon laparotomy as an indication of a lowered state of the tissues, whereas truly it is to a large extent the very reverse, and is an indication of the vitality of the tissues and of active response to irritation. It is interesting to note that in those cases in which the favourable effects of tuberculin and cantharidin have been followed (as in cases of lupus), the most obvious result of the remedies has been the marked local inflammation by them induced. We may therefore, I think, safely state that where laparotomy is successful in bringing about an arrest of peritoneal tuberculosis, it achieves this result as a consequence of the increased activity or reaction of the tissues—of the cells forming or going to form the tubercle—induced by the simple inflammation set up. The antagonism between various writers upon the subject hinges, it seems to us, upon this matter of the reaction of the peritoneum and its surroundings to injury, however slight.

J. G. Adami.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

JULY, 1895.

THE CANADIAN PRACTITIONER.

Address of the President of the Ontario Medical Association—R. W. Bruce-Smith, Hamilton, Ont., p. 479.

Discussion in surgery—Delayed union in fractures—G. A. Peters, Toronto, p. 487.

(1.) Chronic seminal vesiculitis—E. E. King, Toronto, p. 495.

A visit to the Saranac Lake Sanitarium—J. E. Graham, Toronto, p. 502.

(2.) Experiments on motility in bacteria—H. Hill, p. 507.

THE CANADIAN MEDICAL RECORD.

Home and foreign climates in consumption

A plea for efficient legislation regulating medical practice.

AUGUST, 1895.

MEDICAL RECORD (NEW YORK), AUGUST 24.

(3.) An operative procedure for spina bifida—H. Howitt, Guelph, Ont., p. 263.

CANADIAN PRACTITIONER.

Puerperal insanity—N. H. Beemer, Mimico, Ont., p. 559.

Modern experimental surgery on man and woman—J. F. W. Ross, Toronto, p. 566.

Flat-foot B. E. McKenzie, Toronto, p. 576.

History of a case of recurrent nasal fibroma—Price-Brown, Toronto, p. 584.

Some remarks on pneumonia with a report of an interesting case—R. Bray, Chatham, p. 589.

LA CLINIQUE.

Le microscope dans le domaine clinique, par le docteur Marien, Paris, p. 3.

Causerie dentaire, par M. Eudore Dubeau, L.C.D., p. 7.

L'UNION MÉDICALE DU CANADA.

Trois cas de maladie des yeux d'origine dentaire—M. le Professeur Foucher, Montreal, p. 393.

Observation d'un cas de tachycardie intermittente idiopathique—Charles Verge, Quebec, p. 398.

Microbes et maladies contagieuses (suite)—E. P. Benoit, Montreal, p. 415.

SEPTEMBER, 1895.

ANNALS OF SURGERY.

(4.) The surgical treatment of certain forms of bronchocele—F. J. Shepherd, Montreal, p. 289.

(1.) The following conclusions are drawn in this paper :—(1.) That seminal vesiculitis is an analogous disease with salpingitis ; (2) that it is of very frequent occurrence ; (3) that it is the so-called cystitis, prostatitis and prostatic abscess that follows gonorrhœa ; (4) that,

with proper treatment, it is a curable disease : (5) that it is easily recognized *per rectum*.

(2.) A series of experiments undertaken to determine the relation between the possession of motility by bacteria, and their ability to penetrate wet cotton has given the following results :—(1.) Motile bacteria penetrate wet cotton in any direction readily ; the rate of passage varying for different species with the relative activity of their motility : (2) non-motile bacteria pass *downward* through wet cotton readily ; (3) non-motile forms *may* pass *upward* through wet cotton, but such passage is very slow—from some days to two or three weeks ; (4) aërobic forms which are also motile may utilize their motility to resist gravitation ; so remaining at or near the surface of a liquid medium exposed to oxygen. After giving the details of the methods of investigation, the writer points out that these experiments may be made of practical use in distinguishing certain allied species which differ in the activity of their motion. A " special note " is added on the value of this method for differentiating bacillus typhi abd. and bacillus coli communis, the motility of the former being very active, while that of the latter is very slow.

(3.) The procedure advocated by the writer seemed to be based on the following conclusions :

1. One of the most important functions of the cerebro-spinal fluid is to regulate the tension of the great nerve centres, and hence the blood supply to them.

2. That spinal membranes, and consequently the walls of spina bifida, resemble the peritoneum in being apt on irritation, to form adhesions. This provision safely allows the communication between sac and cord to be closed by a suitable ligature, provided septic germs do not gain admission.

3. Neither the size of the tumour nor the breadth of its skin base has any significance in regard to the communication between the sac and cord. A large sessile spina bifida may have so small and imperfect a communication that the tumours may be drained without materially disturbing the tension of the cord. This accounts for occasional cases by tapping, irritating injections, and other equally unscientific modes of treatment. On the other hand, a small one attached by a pedicle may have such free communication that even to tap it leads to disastrous results. It is quite natural to suppose that the delicate sac of a spinal hernia, when it impinges against the skin, receives sufficient resistance to cause it to extend laterally.

4. That the amount of bone deficiency and implication of nerve-

tissue can be determined, not by the size of the tumour, but by the general condition of the infant and the extent of paralysis in the parts below. The parts of the cord in the sac are functionally destroyed, and removal will not increase the paresis.

5. Spina bifida is frequently accompanied by other congenital deformities, such as talipes, spincter paresis, hydrocephalus, and paraplegia. The last named is always, and hydrocephalus generally, incompatible with viability. Hence, from the first, quite a number of the cases are beyond the possibility of a cure.

6. That no operation will successfully stand repeated trials by different operators, unless in its performance a provision is made to prevent disturbance of the tension of the cord.

7. The higher the tumour is placed on the spine, the more delicate are the walls of its sac, the greater the irritation to it by the movements of the child, and the more difficult it is, other things being equal, to treat.

The operation is very simple and is easily performed. After the necessary flap is made, the pedicle is tied by silk ligature and all external to it removed. The author concludes his paper by notes on seven cases treated by this method. Four of the patients are alive and well to-day, one made complete recovery, but died later of meningitis, another had hydrocephalus at the time of operation and died in a month, and only one case of death could be attributed to the operation.

(4.) This article is based upon Dr. Shepherd's experience of sixteen cases of bronchocele upon which he had operated. In several cases the tumour reached from the hyoid bone to the clavicle. They were, as a rule, cystic and encapsulated, and full of a dark yellow fluid containing cholesterin, round cells and fat globules; sometimes, however, when there had been hæmorrhage, the contents were of a dark coffee ground material. The solid tumours were colloid in character. The method employed for their removal is enucleation and is comparatively easy. An incision made over the tumour is carried directly down to the capsule, the cyst is emptied and shelled out. Some cases presented considerable difficulty due to subsidiary cysts on the posterior wall or hæmorrhage due to friability of the cyst wall. The deeper vessels were sometimes troublesome, and on one occasion he had cut the internal jugular. Chloroform is preferred to ether as an anæsthetic in these cases.

Kenneth Cameron.

Reviews and Notices of Books.

The Dyspepsia of Phthisis; Its Varieties and Treatment.

Including a description of certain forms of Dyspepsia, associated with the Tubercular Diathesis. By W. Soltau Fenwick, M.D., L.D., M.R.C.P. London: H. K. Lewis. 1894.

It must be generally admitted that disorders of indigestion are very frequently met with in the course of pulmonary tuberculosis, and sometimes appear to even precede the more distinctive symptoms of this disease. Considering the importance of everything which affects nutrition, the treatment of such digestive disorders becomes one of the most important duties of the physician. In the present volume we have a careful study of the various forms under which we meet with this very troublesome symptom. The opening chapters deal with questions of pathology and morbid anatomy. The condition of dilatation of the stomach in the phthisical is first alluded to. The mammillation of the mucous membrane, the *état mamélonne* of Louis, so characteristic of chronic catarrh is attributed to the contraction of newly formed fibrous tissue situated between the secreting tubules, and is analogous to the nodular appearance of the liver or kidney in cases of chronic interstitial inflammation of these organs. In a certain proportion of these cases, indications of lardaceous degeneration are present, as shown by the reaction of the tissues to a solution of iodine. Ulceration of the stomach the writer has met with, as hæmorrhagic erosions, follicular ulcers, and not infrequently as the simple chronic ulcer. Occasionally the solitary glands become enlarged and swollen, and in some instances form follicular ulcers. He calls especial attention to a form of shallow ulcer occasionally observed in the immediate vicinity of the pylorus, usually oval or boat shaped in outline, with its long axis obliquely to that of the stomach; this he attributes to the presence of lardaceous degeneration in the surrounding vessels. The great rarity of tuberculous ulceration of the viscus, as contrasted with that of the intestine, is attributed to the inhibitory action of the gastric juice upon the bacilli, and to the scantiness of lymphoid tissue in the stomach. In the majority of cases when a tuberculous ulcer is present in the stomach it produces but few symptoms, and exerts little influence on the progress of the primary disease, although it occasionally gives rise to severe hæmorrhage. The condition, however, which is especially characteristic of phthisis, according to the writer, is that of chronic interstitial inflammation, leading to destruction of the gastric tubules, and a more or less diffuse cirrhosis. This condition is found most marked in the more advanced cases of phthisis with excava-

tion, and the conclusion arrived at is that it is excited by the absorption of toxic substances formed within the pulmonary cavities.

The author afterwards treats of the various forms of dyspepsia met with in phthisis, describing the characters and course of each variety, and the methods of treatment which have been found most satisfactory. He gives a very valuable analysis of 500 cases of dyspepsia in early phthisis, and in the last chapter a very valuable contribution to the subject of perforation of the intestine. The book cannot fail in imparting much useful information on a very practical and every day subject, which is sure to be of service to many. A. D. B.

The Barnjum Barbell Drill. By R. Tait McKenzie, B.A., M.D., Demonstrator of Anatomy and Instructor in Gymnastics, McGill University; late House Surgeon Montreal General Hospital. Springfield, Mass.: Triangle Publishing Co.

This is the drill designed by the late Major Fred S. Barnjum, and of its efficiency we need not speak, one has only to look round upon Major Barnjum's old pupils to see the beneficial results of his methods. Dr. McKenzie has conferred a favour by putting the exercises on record in such a useful form. Each of the twenty-two exercises is illustrated by a series of photographs, and a few lines of letter-press are added to direct the learner how to do it and how not to do it. A list of the principal muscles used is appended to each series of photographs, so that physicians can intelligently prescribe these exercises to their patients, calling their attention to those which they especially require. In the treatment of such conditions as lateral curvature of the spine this book will be of great assistance, and its usefulness does not end here, for persons whose occupations are of a sedentary character will find it an excellent "self-instructor" in a form of drill which will exercise all their muscles and keep them in trim. To all such we can recommend the book most highly.

R. C. K.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In Twenty Volumes. Volume III. Occupation Diseases, Drug Habits, and Poisons. New York: William Wood & Co. 1895.

The third volume of this work has been received by us, and maintains fully the reputation won by the two preceding volumes. The first article is written by Dr. Norman Kerr, of London, who has a very interesting and able paper on Alcoholism and Drug Habits. Dr. Kerr is already well known as a writer on this subject, to which he has given much attention. He treats in separate chapters, the purely toxic effects of narcotics, and the almost maniacal craving for them which is developed in their habitual devotees. The second article is on Shock, by Dr. George

F. Shrady, editor of the *Medical Record*, who deals with the subject from the standpoint of the physician rather than that of the surgeon. Papers follow on Sea Sickness, by Dr. Gihon, of the United States Navy, on Mountain Sickness, by Georg von Liebig, of Munich, on Heat Stroke and Frostbite, also by Dr. Gihon, and on Osteo-malacia, by Prof. Councilman, of Harvard University. The paper on Diseases of Occupation, by Dr. James H. Lloyd, of Philadelphia, is of unusual excellence, and is, we think, one of the most valuable that have been written on this subject. It occupies nearly one-fourth of the volume. Toxicology is dealt with in two articles, both by Canadians. The first by Dr. Beaumont Small, of Ottawa, deals with the more important poisons from the vegetable kingdom, the symptoms and treatment in each being accurately given. The toxicology of the more important metallic poisons follows in a concise and carefully written article by Prof. Stewart, of McGill University. The volume is an important one in the series. The letter press is excellent. A. D. B.

A System of Surgery. By American Authors. Edited by Frederic S. Dennis, M.D., Professor of the Principles and Practice of Surgery, Bellevue Hospital Medical College, New York; President of the American Surgical Association, etc, assisted by John S. Billings, M.D., LL.D., D.C.L., Deputy Surgeon-General, U. S. A. Volume II., 915 pages, 515 engravings and 10 coloured plates. Philadelphia: Lea Brothers & Co. 1895.

This, the second volume of a splendid work, follows closely on the heels of its predecessor. The first article is by Henry R. Wharton on minor surgery and bandaging, a very complete exposition on the subject, the value of which is much enhanced by the carefully selected illustrations. George R. Fowler writes an exceedingly good monograph on the subject of plastic surgery, and a short article is contributed by William H. Forwood on military surgery, while diseases of the bones falls to the lot of Nicholas Senn, whose work in this line is too well known to require any description. Virgil P. Gibney has a chapter on orthopædics, while aneurism and other diseases of the arteries and veins are dealt with by Lewis A. Stimson and Frederic S. Dennis. Roswell Park writes on diseases and injuries of the head, Frederic H. Gerrish on surgery of the lymphatic system, W. W. Keen on surgery of the spine, while an article on the surgery of the nerves by John H. Roberts brings this volume to a close. The various writers have done their work well and collected a large amount of new material into the work which makes it most valuable for reference and study. Nothing but praise can be given regarding the way in which the publishers have performed their part; the paper is heavy, the printing clear and the binding strong and sightly. This volume is quite up to the standard attained by the first one and will not prove a disappointment to those who have been looking forward to its appearance. R. C. K.

A Hand-Book of the Diseases of the Eye and their Treatment. By Henry R. Swanzay, A.M., M.B., F.R.C.S.I Fifth Edition, with illustrations. Edited under the supervision of the author by Louis Werner, M.B., B.C.L. London : H. K. Lewis. 136 Gower street. 1895.

The appearance of the fifth edition of this valuable work plainly shows the appreciation in which it is held by the profession.

It is indeed in our idea one of the best of the smaller text-books on ophthalmology.

The book is considerably fuller and larger than it was in the fourth edition.

The latest methods of examination and of testing refraction are explained. The motion of the pupil in health and disease is made the subject of a special chapter, and the amblyopiæ and amauroses are handled at considerable length.

In a work like this which has been reviewed and reviewed time and again, it is difficult and hardly necessary to pick out any special subject for review or commendation

The treatments recommended are broad, yet well defined, giving the student certain clear lines to follow, without hampering his judgment or overloading his memory with a plethora of details.

The book is gotten up in the same style as the previous editions, clear, legible text, with numerous illustrations.

As a guide for the student or practitioner we can not too highly recommend it ; it is good, sound and thorough. J. W. S.

The Care of the Baby. A Manual for Mothers and Nusres containing practical directions for the management of infancy and childhood in health and disease. By J. P. Crozer Griffith, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, &c., &c. Philadelphia : W. B. Saunders. 1895.

The author states in his preface, that he has endeavoured in this little manual to furnish a reliable guide for mothers anxious to inform themselves with regard to the best way of caring for their children in sickness and health. We have read what he says with much pleasure, and congratulate him on having fulfilled his task very ably. The manual is distinctly the best we have yet seen. It succeeds in emphasizing the numerous petty details which, to many nurses and mothers appear so trifling, but which we, as physicians, know to be all important to the infant ; all its statements are clear, complete and thoroughly up to date.

The first eight chapters deal with the methods of bathing, dressing and feeding children of different ages, the proper physical and mental training necessary for due development, and a description of the ideal for baby's nurse and baby's room.

In addition, it contains a concise *résumé* of the more common diseases

of infancy and childhood, and directions for the management of the various accidents to which young life is liable. Many illustrations assist in rendering the text clear to the reader. We cordially recommend the work as a carefully and scientifically written handbook, especially designed for mothers and nurses, but containing much information which is likely to be of service to students and junior practitioners. A.D.B.

Essays in Heart and Lung Disease. By Arthur Foxwell, M.A., M.D., F.R.C.P., Physician to the Queen's Hospital, Birmingham. London: Chas. Griffin & Co. 1895.

We have read these essays with much pleasure and profit. Most of them, as addresses before various medical societies during the past few years, have appeared in print before now, but collected together in this volume they have all been carefully revised, and much new matter added. Among the more important essays, we note those on Dyspnœa, on Catarrh, on Climate, on the Condition of the Vascular System in Anæmic Debility, on Arterial High Tension, on Hæmoptysis, and on the Antiseptic Treatment of Tubercular Phthisis. All the papers bear the impress of one who not only has had a large experience, but who is also a vigorous thinker. His writings are eminently thoughtful and suggestive. We have much pleasure in recommending this volume of essays to our readers. A.D.B.

A Manual of Gynæcological Practice. By Dührssen. Translated by Drs. Taylor and Edge. H. K. Lewis, London.

This is an extremely clearly written work, intended for house surgeons and medical men taking a post-graduate course of gynæcology. The illustrations are good, but as a whole the work is disappointing, not being up to date. The following are one or two examples of omissions. In the article on anæsthesia no mention is made of rhythmic traction of the tongue as a remedy for asphyxia, whereas it is one of the most reliable methods of resuscitation which we have. Neither, when speaking of rendering oneself and the field of operation aseptic, is the use of potassium permanganate and oxalic acid mentioned, these agents being so extensively used on this side of the Atlantic. However, the work has good points as well as bad, as the descriptions of methods of gynæcological examination and also of instruments are both clear and full and will be found useful to the hospital interne and senior student.

F. A. L. L.

The American Academy of Railway Surgeons. Official Report of First Meeting. Edited by R. Harvey Reed, Columbus, Ohio. 1895.

This is the report of a meeting held in Chicago last November and contains a list of the officers of the academy, the constitution and by-laws, and the addresses made on this occasion. Besides, there are several excellent papers on subjects of interest to surgeons—as traumatic aneurism, injuries to tendons, railway spine, etc. R. C. K.

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PRINCIPAL PETERSON.

We are glad to add our tribute of welcome to the new Principal of McGill University, and, so far as we represent the medical profession in Montreal, to greet with all cordiality one who, from his position, must be largely identified with the future welfare of the English-speaking members of our profession in this Province, and, indeed, with that of the French-speaking members also. Although among the former there are many men exercising great influence who are in no way connected with McGill, they, we believe, would be the first to acknowledge that without the hearty co-operation of the University it is rendered still less possible to carry out legislative and other changes calculated to improve their standing, be it in their relationship to their French *confrères*, or be it in relationship to their *confrères* in other Provinces.

It is true that in the University the desire for any such change must emanate from the body most especially concerned, namely, from the Medical Faculty ; yet to meet with success, that Faculty must act in the name and with the support of the University. Thus the influence exerted by the Principal upon the Governors and body corporate of the University is of necessity an influence affecting our profession. It is in this way that Dr. Peterson becomes identified with us.

This, however, is by no means the only way in which Dr. Peterson's influence will be felt. To cite but one other as an example—there is the action which he must take in one or other direction in connection with the subject of preliminary education. We have only to recollect the good work achieved by Sir William Dawson to comprehend what a force the Principal of McGill can be in directing and giving a special tone to the education of the English-speaking inhabitants of this

Province. What attitude will Principal Peterson take in reference to the standard of the matriculation examinations of the University? Will he hesitate to initiate changes in this matter, or will he boldly raise the standard of general education by demanding from those desirous of entering the University a higher level of scholarship?

There is, we fear, a tendency to cry out *Procul este, profani* whenever any seek to discuss these matters in public print, but in these pages, devoted to the interests of our profession, we can assuredly do nothing but good in voicing our opinions. Taking into consideration the sparseness of the population, the climate, and the prevalence of agricultural pursuits in this country, all of which militate against regular school attendance, save in cities and towns, the state of education throughout the Dominion, from one end to the other, is remarkable for its excellence. This, we believe, is freely acknowledged by all. There is, however, an equally remarkable uniformity of stamp. The teaching is the same whatever the destined future of the individual scholar, and there is far too little encouragement or stimulus given to those of higher mental capacity to rise above their fellows and prepare thoroughly for university and professional careers. The lack of proper preliminary training of our students is felt, or shows itself, for years, if not often for life. This state of affairs is surely avoidable, and in our opinion it rests with the university to demand from the schools a higher excellence in the teaching and grounding of those who purpose entering scholastic and professional careers. We do not hesitate to say that the university can safely make the demand. It is scarce thirty years ago since the English universities, despairing in the oft-repeated attempt to improve education by appeal to the schoolmasters, initiated a series of local school examinations, and at the same time raised the standard of their own primary examinations. The effect was magical; the schools stirred by rivalry straightway improved their teaching, and ever since the number of university students has steadily increased and their quality has improved. In our neighbouring States, Harvard (to mention but one example) raised its standard of matriculation despite the expostulations of the schools that improvement was impossible, and the schools immediately, and meekly, responded to the demand. There is no valid reason why we should be behind Harvard. It is not money or numbers that make universities great, it is the quality of the graduates. Canada may not inappropriately be compared with Scotland in very many respects, and the greatness of Scotch education and Scotch universities has had its foundation deep in the excellence of the village schools. What the Scotch dominie has achieved that must the Canadian emulate.

In this, as in every scheme that is calculated to raise the professional standard, the medical public looks for the support of Dr. Peterson, and, we think, not in vain. His experience in Dundee has been most favourable. There he had to administer a university college having an environment not dissimilar to that of McGill, a college founded and endowed by the members of an active commercial community, in which the professional courses appealed to the student, and his parents, with greater force than did the purely academical, and there it was that the medical and allied biological schools were most successful. Under his presidency there was gathered together a particularly able body of professors—Paterson in Anatomy, D'Arcy Thompson in Zoology, Geddes in Botany and Reid in Physiology. His foresight in choosing these men has been shown by the fact that each one has made his mark in his own especial branch of work. We may safely assert, therefore, that here in Montreal Principal Peterson promises to be fully in touch with the medical profession and its needs.

INTER-PROVINCIAL REGISTRATION.

That vexed question, inter-provincial registration, which has occupied the earnest attention of the profession in Canada for nearly thirty years, was undoubtedly advanced a stage at the recent meeting of the Canadian Medical Association in Kingston. The following composed the committee appointed last year at the meeting in St. John to report on this question: Sir James Grant, Drs. Cameron and Pyne from Ontario; Sir William Hingston, Drs. Marcil, Beausoleil, Chalotte, Parke and Roddick from Quebec; Drs. Bayard, Christie and White from New Brunswick; Drs. Farrel and Muir from Nova Scotia, and Dr. Warburton from Prince Edward Island. Two lengthy sessions of the committee were held, so that the matter was thoroughly discussed and the views obtained of the several representatives. No very definite scheme, however, resulted, but the following resolution was unanimously adopted for the guidance of the Association:

"The Committee appointed at the last meeting to look into the "question of inter-provincial registration would beg to express their "regret that by the system which at present obtains, a graduate in "medicine entitled to practise in one Province is not free to exercise "his functions in all the Provinces of this large but sparsely settled "Dominion;

"That this condition of things prevents the names of medical prac-"titioners in this Dominion being placed on the British register, "becoming thereby British Practitioners, which the Council of Medi-

"cal Education of Great Britain has more than once signified its "willingness to grant;

"That with this end in view it is, therefore, most desirable that "there should be a uniform standard of matriculation, a uniform "standard of medical education, and a uniform method of examina- "tion for the whole Dominion.

"That to effect this purpose, the Secretary be instructed to com- "municate with the various Provincial Councils, before their next "meeting, asking that each Council discuss the question, and, if "possible, appoint one or more delegates to a Dominion Committee "for the purpose of adjusting a suitable curriculum and carrying out "the suggestions herein contained, and that such Committee be "requested to forward their finding to each of the Provincial Councils "and to the Secretary of this Association before the next annual "meeting."

The Committee were fortunate in having present Dr. Pyne, Registrar of the College of Physicians and Surgeons of Ontario, as he was in a position to give official information regarding the attitude of that province on this question. He made it plain that the Medical Council of Ontario was pledged to grant reciprocity to any Province having a Central Examining Board, and whose curriculum was equal, in the main, to theirs. With reference to the course of five years of study now exacted, it was thought by all the members of the committee who represented Ontario, that four sessions of nine months each might be taken as equivalent. In fact there was a general impression that, while the conduct of the Ontario Medical Council in this connection might at times have been arbitrary, it was not, on the whole, inconsistent.

We shall take occasion to refer again to this matter in an editorial way, and trust in the meantime that the various Provincial Councils will give the above resolution their earnest consideration, so that, at the meeting of the Association, to be held next year in Montreal, some definite scheme for Reciprocity and Inter-provincial or Dominion Registration will be consummated.

Canadian Medical Association.—Officers for 1895-96.—President, James Thorburn, Toronto. Vice-Presidents: For Prince Edward Island, James Warburton, Charlottetown; Nova Scotia, Wm. Tobin, Halifax; New Brunswick, W. W. White, St. John; Quebec, Hon. D. Marcil, Quebec; Ontario, Fife Fowler, Kingston; Manitoba, H. H. Chown, Winnipeg; North-West Territory, G. Brett, Banff: British Columbia, R. E. McKechnie, Nanaimo. General Secretary: F. N. G.

Starr, Toronto. Local Secretaries : For Prince Edward Island, H. D. Johnson, Charlottetown ; Nova Scotia, G. C. Jones, Halifax ; New Brunswick, Wm. Christie, St. John ; Quebec, J. G. McCarthy, Montreal ; Ontario, John H. Mathieson, St. Mary's ; Manitoba, W. J. Neilson, Winnipeg ; North-West Territory, Geo. Macdonald, Calgary ; British Columbia, W. A. Richardson, Victoria. Treasurer : H. B. Small, Ottawa. The place of meeting in 1896 is Montreal.

—Dr. Geo. B. Fowler has been appointed Commissioner to the Board of Health of New York in place of Dr. Cyrus Edson resigned.

—Rhinologists should be careful in prescribing the cocaine spray to nervous and susceptible people having nose and throat troubles. Many cases have been recently reported where the cocaine habit has been established in this way.

Miss McFee, of Montreal, has recently obtained from the University of Zürich the degree of Doctor of Philosophy. She is a graduate of the Donalda course of McGill University, and has been studying philosophy both at Cornell and in Leipzig.

—Onychophagia, being interpreted, biting the nails, is said by M. Bertillon, the great anthropometric authority, to be a sign of degeneracy. To have a little trick of any kind now-a-days often proves to be only an outward sign of some inward abnormality.

—Dr. Ruffer, the Director of the British Institute of Preventive Medicine, recently contracted a severe form of diphtheria in the course of bacteriological investigations. He was treated with antitoxin serum, and, we are happy to report, is now making good progress towards recovery.

Obituary.

PASTEUR.

If a condition of health is the foremost requisite for a vigorous life, and if the well-being and content of nations before all things depend upon the health of the individuals forming the nations, then he who best ministers to the prevention of disease is the greatest benefactor and stands pre-eminent among his fellows. The world, it may be, is slow to realize this and has not yet merged, if indeed it ever will merge, from that barbaric state of mind in which the Napoleons and those adding to the glory of nations, and to the general death-roll, are accorded more honour than those who avert the incidence of death and add to the years and welfare of the race. Judged by the higher standard the greatest man of this century has just died, and rich as the century has been—richer than all preceding—in noble achievements in every branch of knowledge, abstract and applied, the noblest achievements of all have been those of Louis Pasteur.

The daily journals have devoted columns to biographical notices of Pasteur and it is unnecessary here to dwell upon the details of his life, but it may be well to recapitulate a little of what he has accomplished for science and for the world at large.

While at the present time his name is by the majority associated with great advances in medicine, it is well to bear in mind that the most active period of his life was passed as a chemist, and it was indeed for his remarkable studies in physical chemistry that the Royal Society awarded him its gold medal, the highest honour that it is in the power of that celebrated body to bestow. It was his researches into the phenomena of crystallization that gained him fame as a chemist; it was these same researches that led him insensibly from chemistry to the foundation of bacteriology as we know it. It is strange to think that the whole of our present conceptions of infectious disease, and of our knowledge of the processes of fermentation, and all the enormous strides that have of late been made in establishing upon a scientific basis such vast commercial interests as the making of wine, beer, vinegar, butter and cheese, have followed naturally, step by step, upon observations made into the behaviour of the crystals of certain salts of tartaric and paratartaric acid with regard to their power of influencing the plane of polarization. Yet so it is;

Pasteur's discovery that certain crystals having special characters of polarization could only be produced when micro-organisms were present led him to study the subject of fermentation and to demonstrate for the first time that fermentation is the result of the multiplication and activity of micro-organisms. From this position on the one hand his attention was naturally drawn to the study of the economic fermentations, and to this we owe his remarkable studies, since carried further by Hannsen and others, upon the fermentation and production of beer and wines. On the other hand he was led to become a main factor in exploding the doctrine almost 2,000 years old, the doctrine clearly expounded by Lucretius, that of spontaneous generation. Further, he was led to the discovery, in his fermenting liquids, of anærobic bacteria, thereby again exploding a doctrine till then universally held, that life cannot exist without the presence of free oxygen. Great as is the tribute that medicine owes to Lister it in no wise lessens his fame to remember that the observations whereupon he founded antiseptic and aseptic surgery were a direct outcome of Pasteur's researches upon the part played by bacteria in fermentation.

But to us, and we fancy to future generations, these achievements, sufficient as they are to establish the lasting reputation of any single individual, are of relatively small import compared to the later stages of his work. The great French chemist, Dumas, but little realized what he was accomplishing for humanity when, as president of the commission appointed to enquire into the failure of the silkworm industry of France, he advised the government to employ Pasteur to investigate the matter in the affected districts. The results of Pasteur's investigations, continued through many years, were to clearly prove that the silkworms were affected by a microbic disease, and, commercially, were to save France millions of francs annually. And having once thus learned that diseases could be produced by bacteria, slowly and cautiously Pasteur advanced through a study of infectious diseases, such as anthrax and chicken cholera in animals, until with his researches upon rabies he, the chemist, ventured into the domain of human medicine. While Jenner established the method of conferring immunity against disease by inoculation with material from disease, it was these studies of Pasteur and his associates, Duclaux, Chamberland and Roux, that gave us the explanation to a large extent of the meaning of immunity so produced, and that led the way to the more recent triumphs, not only in the prevention, but in the cure of disease. We are, it is true, only at the beginning of our knowledge of these matters, and it may be that in another century infectious diseases, if

not entirely banished from among civilized communities, may form a quite inconsiderable item in the bills of mortality; nevertheless, what has already been accomplished is marvellous, and the illumination that we in medicine have received through this work inaugurated by Pasteur is truly beyond description.

As that strange contemner of applied science, Ruskin, admits in his "Frondes Agrestes," "It is ordained for our encouragement that every step we make in the more exalted range of science adds something also to its practical applicabilities." Never was this more truly proved than it has been in connection with Pasteur's observations upon dextro- and lævogyrous crystals. But there it was granted to the man himself to find the numerous applications, and—what the gods have granted to few of earth's greatest—to see in his lifetime the fruition of his labours.

J. G. Adami.

Major Thure Brandt, the originator of the system of massage which bears his name, is dead.

Prof. Hoppe-Seyler, of the University of Strassburg, the greatest physiological chemist of our time, died suddenly on August 12th.

Dr. K. Schimmelbusch, first assistant at Prof. von Bergmann's clinic, died on August 2nd, aged 35 years. His researches in regard to the asepsis of wounds had already established his reputation.

THE

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Original Address.

INTRODUCTORY ADDRESS

DELIVERED AT THE OPENING OF THE SIXTY-THIRD SESSION OF THE MEDICAL FACULTY OF McGILL UNIVERSITY OCTOBER 1ST, 1895.

By F. G. FINLEY, M.D., Lon.

Physician to the Montreal General Hospital, Assistant Professor of Medicine and Clinical Medicine, McGill University.

GENTLEMEN,

We meet to-day to inaugurate our Sixty-third Session. It has been customary for many years past to precede the regular work of the session by an opening lecture, and this year it has fallen to my lot to perform this task.

My first duty is the pleasing one of extending to you on behalf of the Faculty a hearty welcome as students in the Faculty of Medicine. The pleasure of my task has been, however, somewhat alloyed by the diffidence I feel in speaking to you on an occasion which marks such an important epoch in the lives of many of you, that of a start in what is to be your real work in life. My only encouragement has been that it is not many years since I trod the same path that you are now entering, so that I can appreciate and sympathise with your difficulties, and that possibly something I may say will strike a sympathetic chord and be of use to you in your journey.

This occasion is in one respect destined to be a memorable one in the history of our Faculty, as it is the first public opportunity we have had of welcoming our new Principal, Dr. Peterson. Dr. Peterson's reputation as a scholar and administrator has preceded him, and we trust his presence may mark a new epoch in the prosperity and welfare of the University over which he has been chosen to preside. I feel I only voice your sentiments in extending to him a cordial greeting, and in assuring him that he will have the hearty sympathy

and co-operation of both teachers and students of this Faculty in all measures connected with the interests of the University.

To all of you who are here for the first time, this occasion takes the place of an introduction and gives us an opportunity to congratulate you on your choice of the profession of medicine. Although not one in which wealth is often attained, yet you will find that its pursuit is attended by an ever increasing interest and enjoyment. Taxing, as it often will, your physical and mental qualities to the utmost, yet there is the corresponding reward in the constant satisfaction and pleasure of alleviating distress among your fellow-men.

You are further to be congratulated on entering on the study of medicine at this late period of the century when so many of the difficulties experienced by your predecsssors have been smoothed away. I will not now enlarge on the great advances made in medical knowledge during the past quarter of a century, but if there is more to learn, I believe that the work is more systematised, that the facilities for learning are vastly improved, and that the change in methods of teaching by substituting the demonstration for the lecture render the task a pleasure rather than a labour. The only point you can regret is that you were not born a little later, when the advance in medical knowledge will compel a lengthening of the course to five or six years instead of the present four.

During the next few months you will doubtless hear much of heredity and environment in shaping the destinies of man. In the latter you will, I believe, find here much to stimulate your best energies, and it remains with you to take every possible advantage of the surroundings in which you are placed. The old tradition of frittering away the first and third years on unworthy trivialities, a tradition which is not yet extinct in all medical schools, has long become relegated to ancient history as far as this college is concerned.

Hitherto your training has been chiefly in literary subjects, and your method of learning altmost altogether from books. You are now called upon to acquire knowledge not only from books, but from the book of nature. You must learn to

"Find tongues in trees, books in the running brooks, sermons in stones."

The faculty of observation must be brought into play, and one of the chief ends of your work here is to acquire this habit in association with your work. This quality is one which can be successfully cultivated by any one willing to devote the time and labour necessary for its acquisition. You will soon find that opportunities are given you to verify the statements made by your text-books, and just in propor-

tion as you devote your energies to doing so will you become good observers.

No sane individual would attempt to read through Quain or Grey and then assert that he had a knowlege of anatomy. Unless accompanied by practical work, such labour would be completely thrown away. The dissections performed, a clear mental picture must be carried away of the relative position of artery, muscle and nerve, and with the aid of a text-book important features are impressed so that the eye and the memory work in harmony. This process of reading and observing must be repeated again and again until the structures become as familiar as the landmarks of your native town. This method is no doubt tedious, but I can assure you that if followed out it will result in a knowledge of the subject which can readily be recalled in later years, and as an immediate result it will enable you to face the ordeal of the primary examination with the assurance of a veteran regiment going into action.

In such subjects as physiology and chemistry you will be greatly assisted in obtaining a real grasp of your subject by the laboratory work, and by the experiments performed to illustrate the subject. Here again I would impress on you the importance of carefully going over the steps of the experiments, and of thoroughly comprehending the deductions made from them.

Whilst a thorough knowledge of facts is the essential basis of a medical education, it is necessary that they should be arranged in an orderly fashion. Each fact, so to speak, should be pigeon-holed and not mixed up promiscuously like the contents of a carpet bag. A proper arrangement and use of your knowledge can only be obtained by the cementing process of thought. It is not sufficient to know the facts, but their relation to each other, and to their bearing on other subjects, must all form a matter of much reflection and no little mental labour.

It is, perhaps, a criticism that may be made on the present system of medical education that the student is not taught to think, that the struggle for facts is so keen that the time for thought is thereby curtailed. I am inclined to think that there is much truth in such statements. There is a tendency to add various subjects to the curriculum, either under the pretence of utility or of broadening the presumably ever elastic mind of the over-worked student, whilst there is no corresponding extension of the period of study. We can hardly be accused of not providing sufficient straw, but we are perhaps a little unreasonable in the demand for bricks. This difficulty to which I have referred has been met fairly by the somewhat radical

change adopted by this Faculty of adding nine months to the length of the curriculum. By this step ample time should now be secured for reflection and the work should be of a higher and deeper quality than before.

On entering on the study of disease you have the advantage of a special preparation in the primary branches. Anatomy has given you an insight into the structure of the body, and has given you the opportunity to observe and verify statements for yourselves. Physiology and chemistry, in addition to teaching you much that has a direct bearing on the final work, has also helped to cultivate your reasoning power and introduced you to the methods adopted in scientific argument.

Entering on your final work time need not be lost in acquiring the methods of study, and the usual experience of the senior student, of the comparative ease with which the final branches are mastered, is in large measure due to the careful drilling in the primaries. The principles to be followed are a repetition of the habit of careful observation, thoughtful habit, and, I may add, hard work.

In the short space of two years it is not to be expected that more than the important elements of the knowledge of disease can be mastered. Much remains to be learned after college days are over, and it is thus of even more importance to lay plans for future extension than to rear a showy but flimsy structure at the outset. When we find the most distinguished members of the profession admitting, towards the end of a life of close and constant application, that they have still much to learn, it is obvious that the student can only obtain the rudiments of this education during his college career. This principle I feel is so important that with your permission I would like to apply it to one of the great final branches—that of medicine—and enquire for a few moments how the brief period of two years allotted to its study can best be spent.

To an audience of medical students I need not dwell on the importance of the subject. For the great majority of medical men medical cases form the bulk of every-day work, and it is therefore important that they should be well prepared to deal with them. Even for the specialist it is important to be accurately acquainted with the abnormal workings of the body in order to avoid the too common error of regarding every derangement of function as a special manifestation of disease in his own limited field of labour.

Of late years there has been a tendency to look down on didactic lectures as being superfluous in the presence of the numerous and excellent text-books in almost all departments of medical literature.

Lectures were started in the pre-text-book days, when they opened up channels almost inaccessible to the student. I feel convinced, however, that the lecture has not yet outlived its day. The appeal to the ear, and the personal influence of a lecturer are, I believe, of very great service in impressing the subject on the memory. A judicious course of lectures in which broad principles as well as important details are treated are of very great help to most students. There is the further advantage of mapping out a course of work, of noticing the more recent advances in medical science, and of emphasizing the important features of the subject. It is, however, a great mistake to trust entirely to note-taking, a habit which I fear is still too prevalent in this school. The man who is anxious to take down every word becomes for the time a mere machine, and fails to profit to the same extent as if he paid more attention to the thoughts and not to the mere sequence of words of the lecturer.

A good text-book should be selected and the subject of the day's lecture carefully studied when it is still fresh in the mind. A single book on each subject is quite enough, and the attempt sometimes made to read two or three authors, although at times useful in elucidating a doubtful point, can as a rule only result in confusion.

It is, however, in the hospital that a real knowledge of disease must be acquired, and it is here that the habits of observation and of reasoning acquired by the training in the primary branches are of the greatest service. The first few months of hospital training are occupied by attendance on clinical demonstrations, by clinical chemistry and bacteriology, and by training the senses in the various methods of physical examination, and it is only when this probationary period is passed that the full benefit of hospital work can be obtained. Clinical demonstrations are then still in order, but the stage of spoon-feeding must now in part give way to individual effort on the part of the student, and he must depend to a large extent on his own efforts, if he is to obtain any real insight into his subject.

It obviously impossible for any clinical teacher to deal with his subject in anything like a complete manner. He cannot impart all his own difficulties and failures, his successes and experience, and at best he must leave out much which he would wish to impart. The student must complete the teacher's work by following up cases for himself, by observing their course, and so gradually gaining an experience of his own.

Of all departments of clinical work in which this self-training can go on, the most valuable is to be obtained by the thorough study of individual cases by means of accurate case taking. It is exceptional

to find, apart from a very few, that this work is appreciated, and the chief object of many seems to be to escape with the minimum amount of labour. The advantages of this work are so obvious that I would hardly stop to consider them had I not learned by experience how often they are neglected. In the first place the art of case-taking is one which requires very considerable practice, and it is easy to pick out an ill-trained man by the manner in which his cases are reported. Systematic training and constant practice in this art would, I believe, exercise a most healthy influence on the medical literature of our day; and the vast quantity of unimportant or irrelevant matter which fills many of our journals would thereby be greatly curtailed and an inestimable boon conferred on the medical public. The habit of recording your observations accurately not only teaches you to observe carefully, but is a training of no mean value in exercising your powers of description. Accuracy in description is by no means easy, as any of you may convince yourselves by trying, for example, to describe a skin eruption in such a way that it conveys a clear picture to another. You will find that every case you report will open up fresh channels of thought and by leading you to compare and classify your facts will prove a stimulus to thinking out the various difficult problems arising in any department of serious work. The knowledge of human nature attained by the study of hospital cases is again another accomplishment which will often prove of quite as much value as technical medical knowledge.

So strongly is the need of this individual work felt by the Faculty, that this year it has been decided to reduce the number of clinics in order to leave leisure for it to be done. It is not meant that this leisure should be frittered away in lounging around the wards and enjoying the side shows and curiosities, but in careful earnest work at the bedside and in the clinical laboratories. The old method of walking the hospitals, much as one might promenade on a popular thoroughfare, will not prove of much use in becoming familiar with the features of disease. The free and easy customs attributed to those jovial creations of Dickens, Benjamin Allan and Bob Sawyer, no longer linger among us, and I fear that the natural selection exercised by examining bodies has caused this species to become almost extinct.

In the study of disease it is well as a student to obtain as large and varied an experience as possible, but thoroughness should never be sacrificed for quantity. It is far more important to see a few cases well and know everything about them, than to rush through a larger number in a careless and haphazard fashion. Cases thoroughly mas-

tered in student days will stand out as types, and in after years these early impressions will be the ones which are most vivid at critical moments, and memories of them will be prized when you are thrown upon your own resources.

A great number of graduates take away with them a stack of note-books " full of wise saws and modern instances," but how many carry a book containing a summary of their own clinical experience ? Such a book, if carefully compiled from daily observation, will prove a volume of inestimable value. Memory is often a rather treacherous friend, but it is surprising how a little aid such as I have mentioned will bring back a sharp, clear picture of long dormant facts.

That the chief object of a medical education is to turn out good doctors goes without saying, but in addition to the special knowledge acquired, there is also the advantage to be gained by the mental culture obtainable by a clear habit of thought, and that higher education which fits a man not only to assume the duties of his profession, but also places him in a position to observe and pass judgment on the manifold interests of human life.

The mere study of medicine from books yields indeed a barren harvest, but if the mental faculties are cultivated as they may be by a medical training, not only will the success of the physician be increased, but his enjoyment of life will be multiplied manifold.

Original Communications.

THE OPERATIVE TREATMENT OF MOVABLE KIDNEY.*

By James Bell, M.D.

Surgeon to the Royal Victoria Hospital and Consulting Surgeon to the Montreal General Hospital; Professor of Clinical Surgery, McGill University.

A tendency has recently been shown in our profession to sneer at and ridicule the operative treatment of movable kidney—to assert that it is useless, unnecessary, experimental, etc., and, in short, to assume that on account of its simplicity and freedom from danger it is a favourite operation with the unscrupulous and that it is frequently, if not generally, unnecessarily performed.

Now, I would not assert that there is no ground for such belief (although I have no personal knowledge of it), nor would I ask you to believe that every case of movable kidney requires operation; far from it; but in this respect this operation does not differ from many other operative procedures, such, for instance, as those for relief of stone in the kidney, stone or stones in the gall-bladder, bow-legs and many other deformities. It is not necessary to say to the members of this Association that in none of these conditions does the surgeon operate simply because of the existence of such a condition, but because of the symptoms which it produces, and which can, it is thought, with at least a fair degree of probability be remedied by operation. Who has not seen, for example, in the autopsy room, renal and biliary calculi which had not been known to have produced symptoms during life? And again, who is there who is not acquainted with men and women who are living happy and useful lives, in spite of various kinds and degrees of deformity? So, too, a movable kidney which gives rise to no symptoms requires no treatment, and I do not doubt but that the discovery of this condition to the patient's knowledge is often one of the greatest misfortunes to her or to him, and is frequently the cause of a train of subjective symptoms which will probably never be entirely removed by operative or any other treatment. My own personal views upon this subject may be expressed in the following statements:

1. That preternatural mobility of the kidney often produces, *per se*,

* Read by title at the meeting of the Canadian Medical Association in Kingston, August, 1895.

many very troublesome symptoms which are quite frequently sufficient to incapacitate the patient.

2. That such undue mobility often leads to organic changes in the organ.

3. That fixation of the kidney under these circumstances is the only rational treatment.

4. That in the great majority of cases (which require treatment), this can only be done by operative measures. (I cannot conceive that it is possible to fix the kidney by any kind of belt, or truss, or appliance, without producing injurious pressure upon the intra-abdominal organs, and, as a matter of fact, I have been unable to satisfy myself that it is possible to retain a movable kidney in its proper position by any kind of appliance, even at the expense of injurious pressure upon other organs).

5. That a carefully performed nephrorrhaphy should practically always succeed in permanently fixing the organ.

6. That nephrectomy for undue mobility of the kidney can hardly ever be necessary.

In illustration of the above statements I propose to give very brief reports of five cases upon which I have recently operated for this condition.

Case I. Mary G., æt. 26. Farmer's wife. Had been married seven years and had had four children, the eldest 6 years of age and the youngest 7 months.

This patient came to hospital complaining of painful and frequent micturition and pain in the abdomen on walking. She was a native of Canada, had had the usual diseases of childhood and an attack of acute rheumatism a year and a half before admission. Since the attack of rheumatism, she had suffered from palpitation and other cardiac symptoms, and examination discovered a loud apex systolic murmur (mitral regurgitant). There was no tubercular history. The present illness began 16 months before admission, when the symptoms above detailed were first noticed, and about the same time she discovered a freely movable mass in the right side of the abdomen. From this time she was quite unable to do her ordinary household work. Her symptoms were attributed to uterine disease, and she was sent to a gynæcologist (Dr. Wm. Gardner), whose examination discovered only a thickened tender ureter on the right side. She was transferred to my ward in the Montreal General Hospital on the 20th of October, 1892, when the following conditions were noted: The right kidney was greatly enlarged (two or three times its normal size), very freely movable and tender on manipulation. Movement of the

body from side to side, or rising to the erect posture caused a sudden dragging pain. While lying in bed the pain and frequency of micturition were much diminished. The right ureter could be felt through the anterior vaginal wall as a hard cord, as large as a large lead pencil, and tender on pressure. The urine was normal in quantity, cloudy, contained mucus and a small amount of pus. There was a little albumen (due to the pus), but no sugar. Tuberculosis was suspected, but several careful examinations failed to discover any trace of tubercle bacilli. On the 24th of November, 1892, the patient was etherized, the urethra dilated and the ureters catheterized by Kelly's instrument. The result was most satisfactory. Cloudy, turbid urine flowed from the right ureter and perfectly clear urine from the left. The ureteral orifices could be felt with the finger in the bladder, and catheterization was not in the least difficult. There was no evidence of disease in the bladder itself.

On the 29th of December the kidney was fixed to the loin by three sutures of silk worm gut, through the usual oblique lumbar incision. (These sutures included capsule and kidney tissue). The kidney was found to be uniformly enlarged, with the pelvis considerably dilated, and the ureter enlarged and thickened at the renal as well as at the vesical extremity. This patient made an uneventful recovery, but on account of the inflammatory condition of the kidney and ureter she was kept in bed until the 9th of February, 1893 (40 days), when she was sent home. By this time the symptoms had almost entirely disappeared and the kidney and ureter had greatly diminished in size. She suffered, however, from incontinence of urine from the dilation of the urethra. I have not seen this patient since she left the hospital as she lives in a remote country district, but I have heard from her several times, directly as well as indirectly, through neighbours. She and they assure me that she is perfectly well and has done her own house work ever since her return from the hospital. Her only complaint is that there is still a tendency to incontinence of urine, noticed when coughing, etc. The net result, therefore is, in this case, that a young healthy woman, who had been confined to her bed and unable to do anything about her house for sixteen months previous to operation (although she had borne a child in the meantime), and whose movable kidney and its ureter were well on the way to inflammatory disorganization (pyonephrosis), has been, since the operation (now two years and nine months), in what she describes as perfect health. I am, of course, unable to report upon the condition of the kidney and ureter, but I am assured that the urine is "quite clear." However we may attempt to explain it, I think there can be little doubt but

that the pathological conditions in the kidney and ureter at the time of operation began with and were primarily due to the preternatural mobility of the organ.

Case II. D. C. F., æt. 40, merchant. A tall, spare man with marked tubercular history, complained of soreness in the right side and back when walking and pain in the right side of the abdomen. He had had right-sided pleurisy twenty years before coming under my observation and had been under treatment for ten years for the above-mentioned symptoms. He had also suffered during this period with an oppressive feeling in the stomach and occasional diarrhœa. He had been treated for dyspepsia, disordered liver function and gall-stones. He had also been severely dieted and had taken much medicine. For a year before admission to the Royal Victoria Hospital (April 29, 1895), where I operated, he had lived entirely on milk and soda biscuits and had lost much weight. He had also been unable during the greater part of the year to do any work. There had been no definite urinary symptoms and the heart and lungs were normal. A movable tumour had been discovered in the right side about twelve months before admission, but a definite diagnosis had not been made until six months later. When he came under my care the diagnosis was quite clear. The right kidney, apparently twice its normal size, moved freely into the epigastrium and down into the pelvis. The urine was clear and normal in every respect. Operation was performed in the usual way on the 1st of May, 1895, and an unusual condition of the kidney was discovered. The pelvis of the kidney extended through to the convexity of the organ, so that there were two masses of kidney tissue representing its extremities connected by a fibrous sac containing an ounce or two of urine. The urine was evacuated through a needle puncture on the posterior surface, the ends approximated and each attached by a silk-worm gut suture (passing through fibrous capsule and kidney tissue for about three-quarters of an inch) to the end of the lumbar incision (fascia and muscle). The patient made an uninterrupted recovery and was discharged from hospital on the 23rd of May. I saw him again on the 16th of July, when he was quite well. The kidney could not be moved from its position in the loin and he had gained much in weight. His only complaint was of an area of disordered sensation in the skin of the abdomen—doubtless due to section of, or possibly only a traumatic neuritis of, the ilio-hypogastric nerve.

Case III. Mrs. L., æt. 52, a spare woman, the mother of eleven children, was admitted to the Royal Victoria Hospital on the 4th of May, 1895, with right pyonephrosis and great mobility of the kidney. She

had been married thirty years and had had two miscarriages in addition to the eleven children above mentioned. She had suffered with the right side for twenty-three years, especially on quick movement or in lifting, and she attributed this trouble to a fall down stairs, in which she had struck upon a barrel. Four years before admission she first felt a swelling in the right side of the abdomen. Since that time she had suffered a great deal with pain and tenderness in the right side and painful and frequent micturition. During sixteen days of observation in hospital prior to operation the amount of urine secreted varied from 18 to 34 ounces daily and it contained a large and variable amount of pus. On the 25th of May, 1895, the kidney was exposed by the usual oblique lumbar incision and was with some difficulty brought into the wound. Two large abscesses were evacuated on the posterior surface of the organ and a rough, irregular stone about the size of a filbert was removed from the trumpet-shaped orifice of the ureter, where it lay quite free and movable. On account of the disorganized condition of the kidney I was strongly tempted to remove it, but as it contained at least 25 per cent. of apparently normal secreting structure, and as I had no knowledge of the condition of the other kidney, I decided to fix it by suture to the edges of the lumbar wound. A drainage tube was inserted, but it came out in forty-eight hours and was not re-inserted. This patient made excellent progress for eleven days, when she developed a left lobar pneumonia. In the meantime the wound had become quite healed and the kidney seemed to be of almost normal size. On the 23rd of June, thirty-four days after operation, the kidney again became swollen and painful, and on the 25th of June the original incision in the loin was reopened and the kidney was found to be firmly adherent to the parietes. It was reopened and a large quantity of pus escaped. A drainage tube was kept in the wound for three weeks. There was no escape of urine and the wound healed immediately when the tube was removed. This patient is still in hospital and has had at times ever since the original operation sharp attacks of pain about the vesical extremity of the ureter. It is of course open to question whether a nephrectomy would not have been a better operation in this case, but I quote it to show that the kidney can be very safely and certainly fixed by two or three sutures of silk-worm gut passed through the kidney structure as well as the capsule. In this case it is impossible to say whether the symptoms were not all due from first to last to the calculus, but it is at least debatable whether the earlier symptoms were not due to repeated obstructive conditions caused by twisting of the ureter and the stone formation secondary to this condition, or perhaps only a

coincidence. Certainly I do not think that the mobility of the kidney can be attributed to the stone.

Case IV. Mrs. B., æt. 41, stoutly built and well nourished, the mother of eight children, was admitted to the surgical wards of the Royal Victoria Hospital, from the gynæcological side, on the 24th of May, 1895, complaining of pain in the right side and back, and of attacks of frequent micturition. She had been an invalid for five years on account of the above symptoms, which were always aggravated by exertion, and which had been growing steadily more severe. She was otherwise in perfect health and the urine was quite normal. The right kidney could be felt of normal size and painless on pressure, through the lax abdominal wall, and was freely movable down to the brim of the pelvis and over to, or beyond the middle line of the abdomen. On the 27th May it was fixed to the loin by three silk worm gut sutures, introduced into the kidney tissue, through the ordinary oblique lumbar incision. She made an uneventful recovery and was discharged on the 15th of July, feeling quite well and with the kidney not discoverable by palpation. Her stay in hospital was somewhat prolonged by a little suppuration at the posterior angle of the lumbar wound. On the 15th August, her physician, Dr. Pagé, gave me a most favorable account of her condition.

Case V. Lucy H., æt. 19, was first seen in consultation in February, 1894. She was a highly neurotic girl, and although the prominent symptoms were pain in the back and pelvis, and attacks of suppression of urine, I declined to operate. In fact, up to the time of my visit, the symptoms had been attributed to a pelvic lesion, and the diagnosis of movable kidney and its possible causative relation to the symptoms (or to part of them), was then first made. Her attention having been directed to the movable condition of the kidney, all the local symptoms became greatly aggravated, and she was sent to me again in March, 1895, for operation. I again advised against operation on the ground, that on account of the neurotic condition of the patient, it was impossible to determine what symptoms, or if any of the symptoms, were due to the excessive mobility of the kidney. Her physicians were greatly disappointed at my decision and strongly urged operation, so that after a good deal of correspondence on the subject, I went to her home in the State of New York and operated in the usual way (using four silk worm gut sutures), on the 22nd of May, 1895. I have not seen this patient since the day I operated, but I have heard repeatedly from her physicians, the substance of the reports being that the lumbar wound suppurated and healed slowly, but that the kidney remained fixed in its normal position.

It is not my intention to discuss the subject of movable kidney in its entirety, nor, considering the recent literature of this subject, would I be justified in doing so, even if time permitted. The whole history of the surgical treatment of this condition (and therefore, practically of its recognition as a condition requiring such treatment), is to be found in the surgical literature of the last fifteen years (since Prof. E. Hahn, of Berlin, described the operation of nephrorrhaphy in 1880). In 1890, two very complete and exhaustive papers were published, independently, by two of the leading American surgeons, one in *The Annals of Surgery* (Vol. 2, 1890, page 81), by Prof. W. W. Keen, of Philadelphia, the other by Dr. A. J. McCosh, of New York, in *The New Medical Journal* (Vol. 1, 1890, page 281). In both of these papers the subject is systematically discussed, and a complete list of all operations which had been reported up to the date of publication, is carefully analyzed. To quote from Dr. Keen's list of 134 operations which he had tabulated to August, 1890, there were 4 deaths, 4 failures, 28 cases improved, 9 unimproved, and 66 cured—besides a few cases described as satisfactory, " possible cures," etc.—not a bad showing for the first decade in the history of a new operation ! Since that date, August, 1890, the operative treatment of movable kidney has continued to grow in favour with surgeons, and has given, from year to year, increasingly good results. C. Neumann, of Berlin, in the *Centralblatt für Chirurgie*, (No. 21, 1894,) has collected 283 cases of nephrorrhapy with the following results : 65.32 per cent. cures, 10·36 per cent. improved, 22.07 per cent. failures and 1.81 per cent. fatal. Amongst the prominent advocates of the operation during the last five years may be mentioned Franks, Küster, Tuffier, Guyon, Guermonprez, Salzer, Zatti, Le Cuziat and many other European and American surgeons.

I shall not attempt to discuss the questions of causation, diagnosis, influence of sex, age or occupation, nor even the selection of cases for operation, except to say, that whenever the symptoms are sufficiently distressing to cause invalidism, operation should be recommended. In this connection, I wish to emphasize the statement already made that excessive mobility of the kidney when of long duration, in at least a certain number of cases (probably much larger than has hitherto been suspected), leads to destructive changes in the organ. (See Cases I., II. and III.) As to the operation itself, the kidney is exposed in the loin, preferably by an oblique incision extending downwards and forwards from the outer border of the erector spinæ muscle parallel to the twelfth rib and a finger's breadth below it (Treves' operative surgery). In the earlier operations the fatty capsule was sutured to the

parietes and there were many relapses. The next step was to separate the fatty capsule from the kidney and pass the sutures through the fibrous capsule, but it was soon discovered that the capsule stripped off very readily. Then advancing a step further the suture was passed into the kidney tissue, including both parenchyma and capsule. Experience soon showed that no apparent injury was done to the kidney and a much more secure approximation was effected which gave better permanent results. Other methods employed have been to abrade the fibrous capsule or to partially remove it in order to approximate a raw surface to the transversalis fascia; to pass the suture around the last rib or through its periosteum, etc. Generally speaking, however, the method employed at the present day is to pass three to four or five sutures through the fibrous capsule and kidney tissue for the space of three-quarters of an inch in length and a quarter of an inch to half an inch in depth and attach them to the cut edges of the transversalis fascia and oblique muscles. There is probably no better arrangement of the sutures possible than that recommended by Mr. Morris—to pass a suture from each edge of the wound near the convex border of the kidney (including muscle, fascia, capsule and kidney tissue) and a third nearer to the hilum, this latter to include both edges of the wound as well as capsule and kidney tissue For suture material catgut has been pretty generally abandoned. Silk is open to the same objection in this as in other operations—that is, that occasionally a sinus forms and persists until the suture is removed. Animal tendon has been employed, and silk-worm gut has of late been used perhaps more frequently than any other material. It seems to be free from objection and answers every purpose. In the *Revue Médicale*, No. 6, June, 1895, is described a new operation for the fixation of floating kidney by Vulliet and Poullet. It is described as fixation by living tendon and consists in suture through the capsule by a detached tendon of the dorsalis longus muscle. (I can only say of this procedure that it seems to me at first sight to be an unnecessarily complicated one.) It is probably better in most cases to allow the wound in the parietes to heal by granulation, both to avoid the risk of cellulitis and to secure a firmer adhesion in the line of the wound. This does not involve any considerable delay in healing, as the wound contracts and closes with amazing rapidity. The anatomical distinction between floating kidney, which is surrounded by peritoneum, has a distinct mesonephron and is congenital; and movable kidney, which is retroperitoneal, has no mesonephron and is generally acquired, is of no practical importance surgically and probably could rarely, if ever, be made out during the performance of an ordinary operation for fixation of the kidney.

RESULTS OF GASTRO-ENTEROSTOMY.*

By Robt. C. Kirkpatrick, M.D.

Demonstrator of Surgery, McGill University. Surgeon to the Montreal General Hospital.

Mme. M. came under my care on October 12, 1894, complaining of "indigestion." This had been going on for some years. For several months she had been getting thinner and weaker, while for a month past she had been suffering from pain in the region of the stomach coming on after the ingestion of food, and from vomiting, usually of the substance of her meals and but rarely of a "coffee-ground" character. Examination of the abdomen revealed a small indistinct mass in the epigastric region to the left of the middle line.

She was admitted into the Montreal General Hospital and a test breakfast given with the following results: The amount of fluid expressed from the stomach one hour after taking a cup of tea and two ounces of bread was much increased, being more than one pint, and was composed of mucus and undigested food, with very apparent quantities of butyric and lactic acids; hydrochloric acid and pepsin were absent.

She was kept in the hospital for six weeks and the effect of dieting and lavage was absolutely *nil*, while the tumour became larger and more apparent until it appeared to be about the size of a hen's egg. It was not movable to any extent, and inflation of the stomach did not cause it to move to the right of the middle line. Such being the case, it was decided to make an exploratory incision and then either remove the growth or perform a gastro-jejunostomy, as circumstances seemed to warrant. Accordingly, on December 6th, the patient being duly prepared and etherized, an incision was made in the middle line extending from the ensiform cartilage to the umbilicus. It was then seen that the pylorus was involved in a growth which extended thence along the lesser curvature nearly to the cardiac orifice. A longitudinal incision was made through the pylorus in order to examine the growth, and there was found a fibrous mass presenting all the characteristics of a carcinoma, a diagnosis which was afterwards verified by microscopic examination of a small portion removed. Hæmorrhage was free from the cut surface, requiring the application of the thermo-cautery to check it. The growth was too large to remove with any hope of success, so the pyloric incision was closed by

* Read by title at Canadian Medical Association, Kingston, August, 1895.

sutures of silk, and at one place where it was difficult to secure apposition of the serous surfaces a graft of omentum was attached and held in place with a few silk sutures. Gastro-jejunostomy was done, an opening about four inches in length being made and the stomach and bowel being attached one to the other by a double row of continuous silk sutures. The abdomen was then closed. The recovery was uneventful and the patient left the hospital on December 31st, twenty-five days after the operation.

On March 16, 1895, the patient returned for examination. Since leaving the hospital she has been gaining in weight and strength, now weighing 129 pounds, a gain of 12 pounds. Occasionally she has slight attacks of pain in the region of the stomach, but no vomiting. She is able to eat ordinary food and the bowels move regularly. She is able to do her housework without undue fatigue. The tumour is a little larger, but is not growing as rapidly as it did before the operation. The test breakfast gave the following result: The quantity of fluid was eight ounces, principally mucus. For her supper the night before she had taken a chop and there was no evidence of this in the fluid expressed. Hydrochloric acid was absent, as was also the pepsin and its zymogen. The curdling ferment was present, but seemed very inactive. Butyric, lactic, and acetic acids were not present in any appreciable quantity.

The stomach contents were examined again on July 17th with practically the same result, except that the quantity of fluid was only two and one-half ounces.

Such is the history of the case given very briefly, and the result is, I think, worthy of some consideration. We have a patient suffering from an incurable disease, and that disease is advanced to such a degree that she is not able to continue her daily work. The question is what we shall do for her. If left alone she will die a painful and lingering death, We have no drug that will produce any effect on the cancer; our sole resort is therefore in operation. If not successful we only anticipate the fatal result by a short time, while if we succeed we give her an increased lease of life and usefulness. In this case the growth was too large to remove, so the only resource was to make a new opening between the stomach and the bowel. And what is the result? In three and a half weeks the patient goes home, takes her place at the head of her household, and is practically well. The vomiting and constipation are relieved, the pain is lessened until it scarcely incommodes her at all, and she is able to eat whatever is set before her. The examination of the stomach contents show that while the motor functions of the stomach are restored and the hyper-

secretion lessened, its digestive functions are not improved. Still the fermentation is prevented by passing the food on quickly and the stomach is able to empty itself more and more completely, as shown by the lessened quantity of fluid obtained at each test. Besides, the growth of the tumour is much slower, probably on account of the lessened irritation when the fermentation is done away with.

The following extract from the "Epitome of Current Literature" in the *British Medical Journal* for January 5, 1895, is of interest because it bears out our observations.

"Rosenheim, of Senator's clinic (*Berl. klin. Woch.*, December 10th, 1894), has examined ten cases, and has nearly always found, whether the primary disease was malignant or not, delay in the passing on of the stomach contents. In a patient with pyloric carcinoma, upon whom Hahn did a gastro-jejunostomy four months previously, there was increase in weight and much improvement, but the secretory functions of the stomach diminished. Bread, meat, and especially vegetables were retained longer than usual, but in this respect improvement appeared to be taking place. The bowels acted satisfactorily. The tumour did not appear to have increased, and the author thinks that the operation tends to delay such growth. It had certainly done away with the retention of fluid in the stomach. In another case in which gastro-jejunostomy was done for carcinoma by Hahn nine months ago, the woman was so much improved that she became pregnant; abortion had to be induced. The patient was without stomach symptoms. The secretory powers were *nil*, but the motor power showed improvement. Complete restitution of the stomach mechanism has not hitherto been observed, as Mintz's case is not quite free from objection. The author then records a case of pyloric obstruction due to the cicatrical contraction of an ulcer, and in which gastro-jejunostomy was also done by Hahn four months previously with the most satisfactory results. The fasting stomach was empty one hour and three-quarters after a test breakfast. The secretory and motor functions of the stomach were normal, and the patient had gained 52 pounds in weight. The gastric hypersecretion noted before the operation was, in the author's opinion, now cured. Here the abnormality in secretion was secondary. There are undoubtedly many cases in which it is primary and and the motor insufficiency secondary. The author contends that in such a case as the one above reported hypersecretion is no contra-indication to the operation."

Taking the results of Rosenheim's observations, together with the case reported, it is evident that in cases of carcinoma of the stomach where there is interference with the motor functions as evidenced by

dilatation of that organ with fermentation and vomiting, we should advise our patients to have a gastro-enterostomy performed, and we can promise them considerable improvement in their condition and an increased lease of life, and that at a minimum of risk.

I have purposely refrained from discussing the mode of operating and the relative merits of suture and of the Murphy button, because the point I wish to draw attention to is the result we may look for after the operation, and I do not wish to enter on any discussion which might lead us away from the main point.

LEGAL RELATIONS OF REASONING MANIA.

By Edward C. Mann, M.D., L.S.S., M.R.A.S.

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Psycho-sensory insanity, furnishes good ground for invalidating civil acts, for notwithstanding the apparent integrity of the intellectual powers, it is probable that their operation is influenced to a greater or less extent by a derangement of the moral power. We certainly ought not to judge the civil acts by the standard of sanity and attribute to them the same legal consequences as to those of sane men, because their real tendency is not and cannot be perceived by the reasoning maniac. These cases, like Guiteau and others of that stamp, always think that the end justifies the means, and in my examination of the insane I never met a single case of this kind, where fear of punishment would restrain them from criminal acts.

When a case of reasoning mania, and particularly that class of reasoning maniacs who may properly be regarded as having a monomania for homicide, commits a crime and the violence of the paroxysm abates, the insane man generally delivers himself up and makes no effort to escape. Sometimes, undoubtedly, the person flies from the scene and tries to escape, but most authorities on insanity unite in thinking this exceptional.

In homicidal insanity, the criminal act for which its subject is called to account, is the result of a strong, and perhaps sudden, impulse, opposed to his natural habit, and is generally preceded or followed by some derangement of the healthy actions of the brain or other organ.

Taylor (643 *Med. Jour.*) relates the case of a young man who entered a shooting gallery, took up a pistol and deliberately shot and killed the proprietor. He said he had no knowledge of the person; he shot him simply to be hanged for it. He had been thinking of suicide for some years.

In most cases, we regret to say, perversion of the feelings, the result of brain disease, unaccompanied with delusions, has not been held as sufficient ground to invalidate and nullify the acts of one so affected. The case of Guiteau is the last celebrated case of reasoning mania executed for murder, and we wish it might be the last spectacle of the kind in this country.

In the trial of Abner Rogers for murder, Chief Justice Shaw, of

Massachusetts, said : " If then it be proved, to the satisfaction of the jury, that the mind of the accused was in a diseased and unsound state, the question will be, whether the disease existed to so high a degree that, for the time being, it overwhelmed the reason, conscience and judgment, and whether the prisoner, in committing the homicide, acted from an irresistible, uncontrollable influence. If so, then the act was not the act of a voluntary agent, but the involuntary act of the body, without the concurrence of a mind directing it." (*Trial of Abner Rogers.* By Bigelow and Bevins, 277.)

Wharton & Stillè (*Unsoundness of Mind*, 43), say that in 1846 Chief Justice Gibson, of Pennsylvania, said in a case he was trying: " There is a moral or homicidal insanity consisting of an irresistible inclination to kill or to commit some other particular offence. There may be an unseen ligament pressing on the mind, drawing it to consequences which it sees but cannot avoid, and placing it under a coercion which, while its results are perceived, it is incapable of resisting. The doctrine which acknowledges this mania is dangerous in its relations, and cannot be recognized except in the clearest cases. It ought to be shown to have been habitual, or at least to have evinced itself in more than a single instance."

Chief Justice Sims, of the same State, said : " Where its existence is fully established, this species of insanity (moral) relieves from accountability to human laws." (*Idem*, 44.)

Judge Edwards said in the Klein case, " It must be borne in mind that the moral as well as the intellectual faculties may be so disordered by the disease as to deprive the mind of its controlling and directing power." (*Select Cases*, 13.)

Judge Whiting, in the Freeman case (*Trial of Freeman, 1847, pamphlet*), expressed the same idea. In another case (*Com.* v. *Haskell*, 2 Brewster, 49) the Court said, " The true test of responsibility lies in the word ' power.' Has the defendant the power to distinguish right from wrong, and the power to adhere to the right and to avoid the wrong ? "

The cases of Dean, Howson, Papavoine, Cornier and others, to be found on pp. 794-796 *Woodman & Tidy's Forensic Medicine and Toxicology*, are all cases of pure homicidal mania associated with reasoning.

It has been truly said that homicidal insanity has the following characters and the lawyer and jurist can easily discover them with the aid of one skilled in psychiatry. The homicidal acts of insane persons have generally been preceded by other striking peculiarities

of action, noted in the conduct of these individuals, often by a total change in character.

They have often been discovered to have either committed suicide, or to have expressed a wish for death, or to have even wished to be executed as criminals.

Their acts are motiveless, or in opposition to the known influences of all human motives. A man, known to be tenderly attached to them, murders his wife and children ; a mother detroys her infant ; or the victims are perfect strangers.

Their subsequent conduct is characteristic ; they seldom seek escape in flight ; they even deliver themselves up to justice, acknowledge their crime, describe their state of mind, or remain stupefied and overcome by the horrible consciousness of the atrocious nature of their deed.

The criminal murderer has generally accomplices in vice and crime ; there are assignated inducements to lead to the commission of the murder—motives of self-interest, of revenge, displaying premeditated wickedness. The acts of the madmen are in some instances of this character, but the premeditation is peculiar and characteristic. (P. 176, *Woodman & Tidy's Forensic Medicine.*)

Finally, insanity is a disease of the body, affecting the mind by deranging its faculties, causing such suspension or impairment of the healthy intellect, the emotions or the will, as to render an individual irresponsible.

The legal test of insanity in criminal cases should be the existence of any subjective morbid condition of the nervous system which misleads the mind or conduct. The basis of insanity consists in the changing and misleading subjective impressions of the insane person, coupled with the resultant change of conduct or of reasoning or both. This is a change of mental character as compared with former self or normal ancestral type. In insanity, physical disease, sickness, impresses itself on the conduct or charcter of the person affected by it, misleading and perverting him in the exercise of his psychic powers.

Clinical Reports.

REPORT UPON THREE CASES OF SYRINGOMYELIA.

By Ingersoll Olmsted, M.D.

It is by the kind permission of Professor Mendel that I am able to report the following cases of a disease which possesses considerable interest. The cases were brought before his class in Vienna during the last year.

Case I.—The patient, W. V., aged 32, a slightly built man, first came to the private poliklinik of Professor Mendel in January, 1890, when the following history was obtained:

Heredity and lues nil; healthy previous to 1875, when he had an ulcer on his arm and another on his lip, together with a carbuncle on his back. In 1880 he had dysentery, and in 1881 typhoid fever. In 1885 patient noticed that the ball of little finger of left hand was diminished in size and the finger was slightly brownish in colour. The hand became weaker and the muscles of the forearm smaller. Presently the other muscles of the hand became atrophic, and with this occurred a loss of the sense of pain, so that often and unwittingly he burned himself. In 1887 he had pain and pricking sensations in the middle and upper part of the back of his neck. In 1888 there was weakness of the muscles of right arm and hand and the sensation of this extremity became affected similarly to that of the left. Both hands became deformed. He had slight chills and a cold feeling in shoulders and arms. The voice changed somewhat, becoming harsh.

At the present time there is smallness of the cleft between the eyelids, the left being smaller than the right. Pupils small and unequal, left smaller than right. Action to light and accommodation prompt. Facial nerves intact.

There are several scars on the hands and arms the result of former burns. The finger-nails are thickened, ridged and brittle (onychogryposis); the skin is smooth and glossy.

The left hand presents extensive atrophy of the muscles of the ball of the thumb and little finger, and of the interossei. The deformity known as "claw hand" is well marked. The patient has very little voluntary movement of the hand; it cannot be flexed on forearm, nor can the fingers be separated from one another. The pathological position can, however, be overcome by passive movement. The forearm muscles, together with the deltoid, pectorals and supraspinatus

of the left side are much atrophied. The right arm and hand are similarly affected, though in a lesser degree. The hand is flexed on the forearm and the fingers are extended, thus differing in position from the left. There is likewise atrophy of the deltoid, pectorals and supraspinatus of the right side, though not so advanced as on the other side. The muscles of neck and back also show atrophy. Fibrillary contractions are to be seen in the atrophied muscles, especially in those of the forearm and thumb. There is tremor of the hands, which is increased on voluntary movements. The power of grasping is much diminished, while that of flexion and extension of the forearm and arm is normal on both sides. The mechanical excitability of the muscles of the upper extremities is slightly increased. The biceps and triceps reflex on either side is absent. The examination of the lower extremities proved negative. The functions of the bladder and rectum are normal. Electrical examination showed incomplete reaction of degeneration in the atrophied muscles.

Sensory symptoms.—The surface of the body corresponding to both upper extremities and the trunk as far down as a line drawn around the body, commencing at the base of the zyphoid process, and passing on the right side to the seventh rib in the axilla and thence to the seventh dorsal vertebra behind, and on the left passing to the fifth rib and along this to the fifth dorsal vertebra, retain the sense of touch and muscular sense, while the perception of pain, heat and cold is very much diminished, and in the forearm and hands completely lost.

The right side of the face and a narrow zone around the body below the line above described, is hyperæsthetic to heat, cold, touch and pain. Below this is another band where pain, heat and cold are scarcely perceived. All the parts below this are in every way normal. The left side of the face is anæsthetic. Dermography is well marked on the upper portion of the trunk.

During the last five and a half years the condition of the patient has remained much the same, the atrophy being rather more advanced, and the deformity of hands more pronounced, although he has been free from pain. This latter point is important, for in pachymeningitis cervicalis hypertrophica the position of hand and atrophy is the same as in this case, but the excruciating pains in the back of the neck, shooting into the arms, with rigidity of the muscles of the neck, the more rapid progress of the disease and the absence of the characteristic sensory symptoms make an error in diagnosis almost impossible.

To recapitulate, the case presents then the following points :

1. Narrowness of the cleft between the eyelids. This depends on

paralysis of the sympathetic nerves coming from the cilio-spinal centre, which innervate the plain muscular fibres situated in the eyelids (Müller's muscle) and which regulate the size of the cleft. In Graves disease, on the other hand, these fibres are irritated, and as a result there is spasm of Müller's muscle and widening of the clefts.

3. Smallness and inequality of pupils, due to the same cause ; the inequality being produced by the unequal involvement of the two sides of the spinal cord by the gliomatous tissue.

3, Anæsthesia of the left side of the face and hyperæsthesia of right side, due to the destruction of the ascending sensory root of the fifth nerve on the one side, with irritation of that of the opposite side. This root takes its origin in the cord, sometimes as low as fourth cervical nerve.

4. Atrophy of the muscles of hands, forearms, &c., attributable to involvement of the anterior horns.

5. Dissociate paralysis of sensation. With regard to the paths by which the different sensations are conveyed through the spinal cord to the brain, very little is positively known. The posterior columns probably convey that of touch and the muscular sense, while those of pain and temperature are supposed to course in the antero-lateral tract. The gliomatous tissue is thought to interrupt these latter nerve fibres when decussating in the cord.

Case II.—A male aged 58, had mild attack of syphilis in 1869 ; no history of heredity. He enjoyed good health till August, 1894, when he felt some pain in the left arm and hand, followed by the feeling of numbness and pricking, especially in the ring and little fingers. The hand became slightly weaker.

At the present time we note narrowness of left palpebral fissure ; left pupil smaller than right ; reaction to light and accommodation good ; blunted sensibility of left side of face to touch, pain and temperature ; innervation of facial muscles normal. There is atrophy of the ball of the thumb and of the little finger, of the interossei, and of the flexors of left forearm. The nerve trunks are not painful to pressure. Touch and muscular sense in arm and hand appear normal, but there is absence of the sense of pain and of temperature. When a pin is stuck into the hand or forearm it is perceived simply as a sensation of touch unaccompanied by pain, so also when hot or cold tubes are applied. The case, in short, has anæsthesia and hypalgesia of the left half of the face, with narrowing of the left palpebral fissure and smaller pupil, atrophy of the hand and flexor muscles of the forearm, also dissociate paralysis of sensation.

Case III.—This was a medium-sized, healthy-looking engineer,

aged 25, with good family and previous history. He complained of numbness of left forearm, especially on the ulnar side and in the ring and little fingers. Shortly before, patient had burnt his arm when working around his engine without experiencing any pain, and in fact knew nothing of it till the next day. He had had slight attacks of dizziness and exhibited a tendency to perspire.

Examination shows narrowness of left palpebral fissure and left pupil. The motor power of both hands and arms is normal. Touch and muscular sense normal, while there is very marked loss of perception of the sense of pain and temperature in the left forearm and hand, especially on the ulnar side.

These cases show great similarity of the parts affected, while the disease in the earlier and later stages is well presented. The two first have involvement of the ascending root of the fifth nerve, and all three point to invasion of the cilio-spinal centre. The last two cases might be confounded with neuritis, but the eye and characteristic sensory symptoms together with the absence of pain on pressure over the nerve trunks exclude that disease.

As an indication of the chronic course of the disease, Mendel has pointed out that in 1867 Duchenne showed a case with the diagnosis of progressive muscular atrophy, and Charcot presented the same case in 1889 as one of well-marked syringomyelia.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Treatment of Diphtheria by Antitoxine.

Welch. "Treatment of diphtheria by antitoxine."—(From *The Johns Hopkins Hospital Bulletin*, Nos. 52 and 53 July and August, 1895.)

The scientific world is becoming daily more appreciative of the practical value and theoretical accuracy of serum therapy—so much so, that to-day few clinicians of note, whose experience has brought them into touch with the new methods of treatment, fail to recognize the epoch-making work on diphtheria antitoxine.

Prof. Welch, in a most interesting series of articles, deals with the subject at some length, convincing his readers that the sum of all our experience hitherto gathered most indubitably favours the use of serum. In an introductory historical sketch he refers to the original investigations of Babes and Lepp in 1889, and points out that Behring and Kitasato in December, 1890, presented the first publication demonstrating the general principles of serum therapy, this being just three years before Roux's memorable address before the Budapest Congress. With reference to the mode of action of the antitoxic serum, he considers the two theories. One, the chemical is based on the principle that the toxine is directly neutralized in a chemical sense. Experiment has already demonstrated the insufficiency of its essential features. The second, or vital theory, is the more natural. It presumes that the antitoxine acts through the agency of the living body, probably rendering the cells tolerant of the toxine. The effect of the serum depends both on the condition and the nature of these cells. They must be able to respond to the stimulus of the antitoxine, else the result will be a negative one. Some types of cells, again, are more susceptible than others to the action of the toxine, e.g. nerve cells, so that they may be destroyed at a very early period, their destruction rendering the antitoxine ineffectual against the nerve tissues thus injured. The antitoxine is not bactericidal though it prevents the development of the local inflammation caused by Loeffler's bacillus.

An interesting comparison follows, showing the identity in essential features between experimental and human diphtheria; an important

difference, however, exists; whereas the experimental variety is almost wholly unattended by complications, human diphtheria not infrequently presents evidences of secondary infections, septicæmias, broncho-pneumonias, etc. Hence, too, the use of the serum in the respective instances varies, for the power of the antitoxine in combating the secondary events is limited, in fact, quite valueless, excepting as a prophylactic. That it should prevent their development is but natural, inasmuch as it antagonizes the causes of the increased susceptibility of the tissues to complications.

The same holds good for individual cells and tissues; once necrosed the antitoxine cannot regenerate them—though its timely administration diminishes the liability to degeneration. The importance of early treatment is strongly emphasized, and the fatality statistics are quoted to indicate the necessity of this rule. In nearly all the series it is shown that patients treated at the earliest manifestation present a far smaller mortality than do those in whom injections were made after several days had supervened.

Further, a sufficiently large dosage is essential to successful results; our methods, hitherto entirely empirical, have been modified according to the age of the patient, and the severity and duration of the disease. The large number of unsatisfactory results in the early days of serum therapy are attributable in no small degree to insufficient dosage.

A large and valuable series of statistics cited affords ample evidence of the success which has attended the employment of the diphtheria serum, and the writer asserts his conviction that the antitoxine is "a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it." The paper throughout is one of unusual interest, and the information so concisely put together that any adequate abstract thereof is practically impossible, while the careful perusal of the series will repay the time spent. *C. F. Martin.*

Surgery.

Dislocation of the Ulnar Nerve.

WHARTON, H. R. "A report of fourteen cases of dislocation of the ulnar nerve at the elbow."—*American Journal of Medical Science*, October, 1895.

In this article Dr. Wharton reports one case observed by himself. The patient was a boy aged 15 years, who was struck upon the inner aspect of the right elbow by the point of a stick of wood. Upon the reception of the blow he felt a sharp pain at the seat of injury and noticed a sense of tingling in the inner side of the forearm and in the little and ring fingers. Upon examination some time afterwards, when the swelling had been reduced by hot applications, a cord was discovered in front of the inner condyle, pressure upon which caused pain and tingling in the little and ring fingers. The diagnosis was dislocation of the ulnar nerve. The nerve could be pushed back into its normal position. When the arm was flexed the dislocation recurred. A pad was applied which retained the nerve in its proper place, but upon removal of the pad the nerve invariably slipped forward again upon flexion of the arm. The pain became, however, gradually less, and the parents of the boy declined to have any operation performed.

Dr. Wharton has collected brief reports of thirteen other cases. They all presented the same symptoms. In all of them the nerve could be replaced without difficulty when the arm was in the extended position, and in all of them the nerve slipped forward again when the arm was flexed. In six or seven cases an incision over the back of the inner condyle was made and the nerve inclosed in a sheath of fascia. In all the cases so operated upon recovery ensued. The nerve remained in position and functionated normally.

Dislocation of the ulnar nerve at the elbow is a comparatively rare affection, occurring independently of fractures or dislocations of the bones of the elbow, and may result from direct violence, from muscular effort or violent flexion of the arm at the elbow, causing laceration of the fascia holding the nerve in its groove at the back of the inner condyle of the humerus.

Zuckerkandl, in an examination of two cases of dislocation of the ulnar nerve in dead subjects, noted that the internal condyle of the

humerus in each of these cases was small and the groove for the nerve shallow, and the fascia binding down the nerve was poorly developed; an unusual forward position of the internal lateral ligament was also noted. In view of the possibility of the development of a neuritis it seems wise to replace the dislocated nerve and fix it in its normal position as soon as possible after the injury. In all the reported cases where the nerve was exposed and sutured in its normal position, the result was satisfactory and the dislocation did not recur, and in no case is it recorded that neuritis developed in the nerve as a result of operative treatment. *G. E. Armstrong.*

Pharmacology and Therapeutics.

The Treatment of Diabetes Mellitus.

West. "Treatment of diabetes mellitus by uranium nitrate."—*The British Medical Journal.* August 24, 1895.

Robin. "The alternating treatment of diabetus mellitus."—*Bulletin de l'Academie de Médicin,* No. 23, 1895; *Boston Medical and Surgical Journal,* August 29, 1895.

Cassaet. The treatment of diabetes mellitus by the administration of brewers' yeast."—*La Presse Médicale,* August 24, 1895.

After a short summary of the few facts known about the physiological action of uranium nitrate, Dr. Samuel West, of St. Bartholomew's Hospital, in a paper read at the last meeting of the British Medical Association presents the results of his investigations on the action of this drug in diabetic patients. He commenced by administering the drug to a number of diabetic out-patients, beginning with small doses and gradually increasing them, watching the effect. He found that after the administration of the drug for a short time all the patients, without exception, stated that their thirst was greatly relieved, and the frequency of micturition and the quantity of urine passed greatly reduced. As the results promised well, he instituted a careful investigation by making daily a examination of the urine of several patients, whom he took into the wards of the hospital for that purpose. One patient he had under observation for more than twelve months, and during that time an almost daily examination of the urine was made, and a careful record kept of the patient's weight, diet, and general condition. Another case, a private patient, was also under observation for a long time. In both an effort was made to place the patient under constant conditions, so that the only difference should be the administration or withholding of the drug which was under investigation. Detailed notes are given of both these cases. The results obtained, says the writer, leave us no reason to doubt that we have in uranium nitrate a drug which has a powerful action in influencing some of the more prominent in that group of symptoms known as diabetes. As to the mode of action we can only speculate. Dr. West thinks it likely that the action is due to the effect it has in

checking the digestion of starch and of some forms of albumin, and in controlling excessive pancreatic digestion.

As to the size of the dose, care must be exercised. Experimentally it has been proved that uranium nitrate is an irritant poison, and its prolonged administration in full doses may be followed by albumin in the urine, due to an irritative and destructive action on the renal epithelium. Chittenden states that if the albuminuria produced by a certain dosage is allowed to disappear by suspending its administration, the drug can then be given again, and increased to ten times the amount, before albumin again appears. In none of the writer's cases did albumin appear in the urine at any time; this he attributes to the administration of the drug in small doses, which were only gradually increased. He also thinks it possible that when an effect is once produced by the drug upon the disease it can be maintained by continuing its administration in smaller doses. He is also inclined to think that the effect is not entirely dependent upon the amount administered each day, but that small doses, although taking longer to act, may have almost as efficient an action as larger ones. As to the method of administration, he states that the nitrate is best given freely diluted with water and after food, commencing with a small dose of one or two grains twice daily after the chief meals, and increasing the quantity slowly at intervals of a few days until its effect is produced. Thus given he has not found it disturb the digestion, or cause any irritation of the stomach or bowels, and albuminuria has in no instance been induced.

Dr. Albert Robin, editor of the *Bulletin de Thérapeutique*, believing that in many cases of diabetes there is an over-activity of nutrition in general and of the hepatic cell in particular, the result of continuous nervous excitation, direct or reflex, recommends the administration of drugs which diminish the activity of this metabolism by acting primarily on the nervous system, and thus describes a treatment carrying out this idea in three alternating stages. He begins by a week of dietetic regimen, in which the rigorous principles of Bouchardat are enforced. A careful quantitative analysis of the urine is then made and the amount of sugar noted. Should the sugar have entirely disappeared, no medical treatment is advised, but the patient is directed not to vary for a long time from the prescribed diet. In general, the sugar is only diminished in amount, and the patient then begins the first stage of the medicinal treatment. In this a powder containing fifteen grains of antipyrin with eight of sodium bicarbonate, is directed to be taken twice daily, one hour before breakfast and before dinner, in a little mineral water. At the same time

cod liver oil in moderate doses should be taken with the meals, and a full dose of Rochelle salts as a daily morning purgative in the event of constipation. On the fourth or fifth day this treatment is suspended, and quinine, which is believed to lessen organic destruction, is prescribed in a dose of six grains, with the mid-day meal. It is directed to be taken for six days, then discontinued for four days, and again taken for six days. At the same time with breakfast and dinner is taken a cachet containing arseniate of soda, carbonate of lithium and codeia, all of which are supposed to diminish the "activity of the tissues and retard nutritive mutations." The cod liver oil is continued if well borne. After fifteen days the medicines of the second stage are dropped and the patient commences those of the third stage, namely, opium and belladonna, bromide of potassium, the alkalies, and valerian, all being "moderators of the exchanges." These are administered as follows: For eight days a pill containing extract of opium, belladonna and valerian is given every six hours for the first and second days, every four hours for the third and fourth days, every three hours for the fifth and sixth days, and again every six hours hours for the seventh and eighth days. During this period the patient is directed to drink freely of boiled water containing about a drachm of sodium bicarbonate to the pint. The cod liver oil is discontinued, and if there is any intolerance of the opium and belladonna, bromide of potassium is substituted in fifteen grain doses. On account of the loss of inorganic salts in diabetes the author endeavours to maintain the supply by a liberal use of green vegetables and by directing that salt be taken freely with the food.

If sugar is still present in the urine after the completion of this course, the series is recommenced. After a second course, whether the sugar has disappeared or not, a respite from all medical treatment for a month should be directed, and a strict diet maintained. During this month of interruption the patient, if still azoturic, should continue the use of the alkaline waters. If, however, the proportion of urea falls below the normal, the alkaline waters are stopped, and some ferruginous preparation given instead. If during the treatment the sugar disappear from the urine, the return to ordinary diet must be very gradual, demanding at least six months or a year.

Dr. Robin has tried this plan of treatment (which has taken several years in its elaboration) on 100 cases of true diabetes, in each of which the excretion of sugar exceeded 100 grammes (3½ ounces) in the twenty-four hours. Considerable and permanent amelioration, conditional on careful dieting, with occasional resumption of the treatment, has been noted in 33 of these. In 24 cases a definite cure has re-

sulted, in 25 recovery is still doubtful, and in 18 the results have been negative or only temporary.

Dr. Cassaet also read a paper at a recent meeting of the *Congrès Français de Medicine Interne*, on the results obtained by the administration of brewer's yeast in diabetes. It was given in doses of an ounce and a half at meal time. Although at first it gave rise to eructations, and, later on, diarrhœa, tolerance was established in a few days, and an improvement in the general conditions was noted.

Action of Antisudorifics.

SEMMOLA. "A clinical study of the antisudorific properties of picrotoxine."—*The Lancet*, September 14, 1895.

In a very interesting paper read at the Institution of Clinical Therapeutics of the Royal University of Naples, Dr. Semmola points out the various means by which the function of perspiration is regulated. A special system of secreting nerves appears to preside over it, which although closely associated with the vaso-motor system is, nevertheless, independent of it, as is evidenced in the perspiration which takes place with a pale skin in cases of strong emotional excitement, or in the death agony. This fact has also been verified by the induction of perspiration in an amputated limb. Sudorific centres have also been discovered; in the cat a lumbar centre has been shown to influence the posterior limbs, and a cervical centre the anterior ones, while a bulbar centre, influencing all four limbs, has been demonstrated, which, under stimulation, may produce perspiration three-quarters of an hour after the death of the cat. Generally, however, perspiration is in direct proportion to the quantity of blood distributed in the surface of the skin. It is therefore clear that this secretion may be influenced in various ways, and the several agents in our pharmacopœia which act on this function may do so in differing methods. Some may act by increasing the mass of blood, as in the case of copious draughts of hot water, or by exciting the action of the heart as in abundant potions of warm spirituous liquors. Others, again, such as muscarine, nicotine, or acetate of ammonia, may act by stimulating the sudorific centre; or the whole of the secreting nervous apparatus, both central and peripheral, may be stimulated, as by pilocarpine; or, lastly, the vaso-motor system may be paralyzed, as by antimony or ipecacuanha. On the other hand, antisudorific effects may be obtained from drugs acting very variously. Agaricin and agaricic acid possess a paralyzing action on the peripheral apparatus of the sweat secretion. Camphor and camphoric acid act as

general stimulants to the nervous system. Atropine paralyzes the secreting nerves, while picrotoxine acts by first stimulating the vaso-motor medullary centre, and afterwards constricting the vessels. Before, therefore, the physician institutes an antisudorific treatment he should form a clear conception of the pathogeny of the disturbance in the secretion, and according as to whether the nervous sudoral apparatus, the vaso-motor system, or the smooth fibres of the blood vessels, are affected, he should chose that agent which will directly counteract the pathological condition present. Thus when treating an ephidrosis due to excitement of the sudoriparous nervous system, we must have recourse to those medicines which, like agaricin, atropine, &c., have an inhibitory action ; when we believe the ephidrosis is due to paralysis of the vaso-motor centre, we should administer stimulating remedies, such as picrotoxine ; and, lastly, if there is a diminution of vascular tone from peripheral disturbances, we should then use hydrotherapy, which has a marked action on the vascular walls. Guided by these ideas we may obtain excellent results in cases where many remedies given in a merely empirical method have failed. The writer details the case of a patient with valvular disease of the heart, and great prostration following influenza, in whom ephidrosis persisted, and was associated with livid red erythematous patches on the skin. Picrotoxine was prescribed as a stimulant to the vaso-motor centre, and the perspiration rapidly diminished in amount, and disappeared on the eighth day of treatment.

Tongue Traction.

McCallum, H. A. "Tongue traction as a cardiac stimulant."—*The Medical News*, September 28, 1895.

Dr. McCallum, of London, Ont., states that as a result of experiments upon animals, he places considerable confidence in this measure as a stimulant, not only to respiration, but also to the heart's action. He finds that it increases not only the rate of an exposed and failing heart, but also the vigour of its contractions. At first he thought that this effect might possibly be due to a lowering of the blood pressure, through the tissues of the neck acting as a pump on the carotids and aorta, or through inhibition of the vaso-constrictor centre. To determine whether this was a correct explanation, some animals were allowed to die of hæmorrhage, but it was found that in these the effects of tongue traction were, if anything, even more marked than in animals dying with cardiac distension. In some cases he divided both the vagi, without appreciably altering the results. He was,

therefore, led to conclude that the stimulation was due to an action on the cardio-accelerating centre in the medulla.

Laborde spoke in the most confident terms of the superiority of this method of restoring cases of asphyxia, and the writer is satisfied that it will succeed in many cases, even when other methods fail, since it acts both as a respiratory and cardiac stimulant. It may be combined with a good method of artificial respiration in anæsthetic accidents, cases of drowning, asphyxia, and syncope from any cause.

It appears, however, easy to exhaust the effect on the medulla, for it was noted that, if tongue traction be practised on the animal before the heart ceases to beat, it is powerless to restore the contractions, when the heart has once stopped.

A. D. Blackader.

Gynaecology.

Hydrosalpinx.

Cullen, T. S. "Hydrosalpinx."—*Johns Hopkins Hospital Reports.* 1895.

In this exquisitely illustrated report, Dr. Cullen deals with eleven cases occurring in the Johns Hopkins Hospital, and with these as his text, he passes on to discuss the subject in all its bearings.

The tube at its uterine extremity is usually small, and after following a tortuous course outwards, rapidly or gradually dilates, the dilated portion presenting three or four constrictions, with corresponding bulging. This has been likened to a coil of intestine. Some specimens have assumed the shape of a pipe, the occluded fimbriated extremity corresponding to the bowl. The tube usually is found lying low down in Douglas cul-de-sac.

A dilated tube of this nature has a size of a small orange to that of a child's head. Tumours of immense size are also reported, notably one by Peaslee containing eighteen pounds of fluid. Bonet reports one containing thirteen pounds of fluid.

The tube is usually bound down by adhesions to the ovary and surrounding structures, and the omentum is found attached. The uterine end of the tube is usually free, while the fimbriated end is fixed. Occasionally the whole tube may be absolutely free from adhesions. In six out of the eleven cases small sub-peritoneal cysts containing clear fluid were found close to the outer end of the tube.

Förster states that hydrosalpinx is usually double, but from later experience of other gynæcologists it would seem that one-half of the cases are unilateral, while the other half are bilateral.

The walls of the tube are usually very thin. One case is reported where a calculus was found within the lumen of the tube. If the tube has been ruptured during extraction it will contract to its original size and thus probably deceive the operator. The fluid is generally pale straw colour, but sometimes tinged with blood.

The classification given by Cullen is as follows:

1. Hydrosalpinx simplex.
2. Hydrops tubæ profluens.
3. Hydrosalpinx follicularis.
4. Tubo-ovarian cyst.

The gross appearance of the first variety agrees closely with the general description already given. That is to say, the uterine end is usually normal in size; as it passes outward it becomes slightly convoluted, and gradually or suddenly dilates, increasing in size until the occluded, fimbriated end is reached. The tube, as a rule, is found low down in Douglas' cul-de-sac. The tube is usually adherent.

The author describes twenty-one cases of this variety, including the one in which there was a tubal calculus.

Hydrops Tubæ Profluens.—This term has been given to a variety recognized by the escape of fluid from the tube into the uterine cavity periodically. The variety is rare. Martin reports four cases in 500 of tubal disease.

Hydrosalpinx Follicularis.—In this variety the tube is usually of small size, and in one case did not reach more than 3 cm. in diameter.

Externally it differs in no way from the simple variety. *On section, however, it presents a honey-combed appearance, and may or may not show a central lumen.*

Scattered throughout the central zone of the tube are oval and round spaces, varying from a pin-point to 8 mm. in diameter. These cavities are filled with fluid and apparently communicate with one another. Three cases of this variety are reported.

Tubo-ovarian Cyst.—In this variety the dilated tube communicates with an ovarian cyst, the fluid contents passing from one cavity to the other. The first thing that attracts attention is the cyst, which may vary in size from a walnut to a child's head. Coursing along its upper surface is the Fallopian tube, which may be normal in size at its uterine end. As it passes outwards the tube dilates and terminates in a dome-like extremity which, by its under surface, is intimately adherent to the cyst. The ovarian cysts may be unilocular or multilocular and of various sizes. Cullen states that three of eleven cases were tubo-ovarian. These cases are given in detail in the report.

The Fluid.—According to Hammersten this is a watery serous fluid containing albumen, but not containing a pseudo-mucin.

Etiology.—The causes of hydrosalpinx are extremely vague and uncertain of proof. It is thought, however, by the majority of observers, that it is due to occlusion of the fimbriated end of the tube by inflammatory action set up by many accidents. Pyosalpinx may degenerate into hydrosalpinx by absorption of the pus cells through a process of fatty degeneration (Landau). This is not generally credited, however.

The follicular variety is thought to be due to a previous endosalpingitis, the mucous folds of opposing sides of the tube becoming

adherent, and in this way giving rise to the honey-combed appearance on section.

The tubo-ovarian variety results from the tube becoming adherent to the ovary containing a Graafian follicle. Both gradually dilate and pressure causes absorption of the intervening wall.

Origin of Fluid.—Interesting experiments upon rabbits and guinea-pigs have shown that by ligaturing the tube at each end we can produce a hydrosalpinx through the accumulation of the normal fluid.

Symptoms.—These are very indefinite and indeed may be entirely absent. Usually they are those of ordinary inflammatory pelvic disease. The effect on menstruation is also very various and cannot be relied upon in making a diagnosis. The patients are usually sterile. Vaginal examination shows the uterus to be very sensitive and enlarged. Passing outwards from the fundus uteri the enlarged tube can be felt. It is sometimes elastic and will force the fundus forward again when pressed back against it.

Treatment.—The report describes some valuable points in the operation of abdominal section necessary in such cases.

T. Johnson-Alloway.

Pathology.

Recent Studies upon Jaundice.

VAUGHAN HARLEY. "Leber und Galle während dauernden Verschlusses von Gallen und Brustgang."—*Archiv. für Anatomie und Physiologie. Physiolog. Abtheilung*, 1893, page 291.

STADELMANN. "Der Icterus und seine verschiedene Formen." Stuttgart, 1891.

WILLIAM HUNTER. "The action of Toluylenediamin."—*Journal of Pathology*, Vol. III., No. 3, July, 1895, page 259.

Until very recently, jaundice was held to be of two main varieties, hepatogenous and hæmatogenous, the former due to obstruction to the flow of bile from the liver, and to consequent absorption into the blood, the latter due to the transformation of the blood pigment of destroyed blood corpuscles into bile pigment in the circulation, or, as Osler expresses it, to a suppression of the functions of the liver cells, as in the widespread necrosis of acute yellow atrophy, or to an excess of the chromatogenous material, as in malaria, in which the liver functions cannot keep pace with the blood destruction. Concerning the existence of the former, or obstructive jaundice, our views at the present day are in no wise altered, save to the extent of being expanded. Vaughan Harley's researches show us more clearly than heretofore the path whereby the bile, prevented from passing into the intestinal canal, gains entry into the blood and so becomes diffused throughout the system. The current opinion had been that, while possibly the lymphatics of the liver might play some part in conveying away the excess of bile in the organ, the main channel and the natural channel, whereby the bile salts and pigment enter the circulation, was to be found in the remarkably rich portal capillary circulation. Von Fleischl, Kunkel and Kufferath had already before Harley made observations to determine the point and they had shown that bile can pass from the liver by the lymphatics when the common bile duct is obstructed. Harley confirmed the earlier work; he found that if the common bile duct be ligatured the bile salts and pigment pass very rapidly into the blood and so into the urine. In fact, very shortly after the operation they are to be detected by delicate methods. Advancing further he found that if the thoracic duct be also ligatured

no jaundice sets in, and for periods as long as seventeen days not a trace of bile pigments might be detected in the urine. The urine, it may here be added, shows far sooner than does the blood the presence of these constituents of the bile. Unfortunately in seven out of ten of Harley's experiments, in which the thoracic and bile ducts were ligatured at the same time, there resulted a rupture of the latter, in consequence of the great pressure of the contained bile. This rupture took place at periods varying from two to seventeen days and led naturally to a failure of the observations beyond the time of outflow of the bile into the abdominal cavity. Rupture could be prevented by first ligaturing the common bile duct, and then a week or so later performing the same operation upon the thoracic duct. Eight experiments of this nature were performed, and in three of the eight the bile which had been present in the urine after the first ligature disappeared after the second, reappearing again several days later. In the other five cases the urine never became free from bile. The general conclusions to be gained from these experiments are that the normal path whereby bile leaves the liver, after obstruction of the common duct, is not by the hepatic veins, but along the lymphatics, and that if the main lymphatic trunk be ligatured jaundice often does not supervene for several days, that sooner or later after ligature of the thoracic duct the lymph (as shown by dissections) finds collateral channels for entry into the innominate vein, and that then only does jaundice manifest itself.[1]

With regard to the various forms of the second variety, the so-called hæmatogenous jaundice, the work of the last few years has been distinctly unsettling; so that at the present time there are those who debate as to whether there is truly such a form, who hold jaundice to be produced only by pigment elaborated in the liver cells, and who are inclined to consider that all forms of icterus are primarily obstructive and so hepatogenous. This alteration in the views regarding jaundice has been due in the main to the observations of Afanassiew and Stadelmann upon the icterus produced in poisoning by toluylenediamin, phosphorus and arseniuretted hydrogen. The observations of these two observers have been notably advanced by Hunter. Afanassiew showed that the first of these drugs exercises a markedly destructive action on the red corpuscles—an observation that has been since

[1] Ziegler has recently contested the validity of Harley's results, and pointed out that masses of bile pigment may be found in the intra-acinous blood capillaries in cases of jaundice. He concludes that bile in these cases enters the circulation by rupture of the distended bile capillaries. Several objections can be brought against this view, of which the most convincing are the rareness with which indications of such rupture are to be met with in the liver and the very striking success of a large number of Harley's experiments. Nevertheless, the possibility of such rupture must not be left out of account.

repeatedly confirmed. Stadelmann showed that when it is introduced into the system well-marked changes occur in the bile. In the first stage this is increased in quantity and is very rich in bile pigments, then follows a second stage during which it loses all the characters of bile and is replaced by a small quantity of viscid colourless mucus. This change begins in the dog about the fourteenth hour and it lasts until the third day, after which the bile gradually returns to its normal character. With these changes in the bile jaundice is very evident, beginning during the first stage, reaching its maximum during the second, and gradually disappearing during the third. It would seem, therefore, that the drug causes destruction of the blood, the hæmoglobin set free leads to an increased formation and excretion of bile pigment, the character of the bile is altered in the direction of increased viscidity, which in consequence of the low pressure at which bile is excreted causes a temporary obstruction and leads to a reabsorption of the bile along the lymphatics. Here, then, if this view of Stadelmann be correct, the icterus which at first sight has all the characters of a hæmatogenous jaundice depends really upon intimate changes in the character of the bile, leading to a temporary arrest of its flow.

Another form of jaundice, that in phosphorus poisoning—which is so similar to that of acute yellow atrophy, and which is associated with lesions in the liver so similar to those of the latter disease that some have regarded the two conditions as identical—presents characters which have always led to its being regarded as the typical hæmatogenous jaundice; yet studying the action of the drug Stadelmann has found that phosphorus induces similar changes to those set up by toluylenediamin, differing only in the one respect that they are slower in their development. The same is true in the case of arseniuretted hydrogen. There are other ways in which profound destruction of the red corpuscles may often be induced with associated development of jaundice, such as the injection of water or hæmoglobin into the circulation, the inhalation of ether and chloroform, extensive burns, poisoning by pyrogallic acid and naphthol, and the jaundices so produced, as also those of paroxysmal hæmoglobinuria, pernicious anæmia and malaria, have all been classed as examples of hæmatogenous icterus. These observations of Stadelmann would seem at first sight to render it extremely doubtful if any single one of them be not truly hepatogenous, or, as Afanassiew would term it, hæmohepatogenous.

Hunter's observations, which have been carried on since 1888 and are a continuation of his well-known studies upon pernicious anæmia,

show that the concentration of the bile, which is so characteristic a feature in the first form of jaundice above mentioned (toluylenediamin is a painful word to repeat too frequently), is due to an extensive catarrh of the bile ducts extending from their origin downwards towards the duodenum and occasioned by the excretion of the poison or its derivatives through the bile.

In all cases following the injection of the drug he found a condition of congestion and catarrh of the mucous membrane of the duodenum, having its greatest intensity around the opening of the bile ducts. The drug had been given hypodermically, and so could scarce have acted directly upon the intestinal mucous membrane, while the swelling and catarrh was equally manifest along the course of the bile duct. What is more, as early as one hour after injection traces of the drug could be detected in the bile. Hunter, however, considers that the irritant action of the bile is not due to the poison itself, but to its derivatives, for his researches show that a singularly small proportion of the drug is obtainable from any of the excretions; it would appear to undergo rapid conversion into derivatives. He does not consider that the involvement of the duodenum is anything but a mere adjunct to the catarrh of the bile ducts. According to him, therefore, the jaundice in question is a catarrhal jaundice, differing in character from the ordinarily accepted catarrhal jaundice by spreading downwards from the small bile capillaries, rather than upwards from the duodenum, and, again, in being associated with destruction of the red corpuscles.

From this point Hunter passes on to consider what is the relation between increased destruction of blood and jaundice. He shows that simple excess of free hæmoglobin in the blood, even in quantity sufficient to cause hæmoglobinuria, does not necessarily of itself suffice to cause jaundice. The very drug with which he has worked causes jaundice without hæmoglobinuria in dogs, hæmoglobinuria without jaundice in cats, while in rabbits it apparently causes neither the one nor the other, and yet in all three classes it occasions a destruction of the red corpuscles. He discusses whether the occurrence of icterus after an increased blood destruction may be dependent upon the form in which the blood pigment removed from the corpuscles is supplied to the liver, and points out that under the action of his drug the hæmoglobin does not become dissociated from the albuminous stroma of the corpuscles, as it does when distilled water is introduced into the circulation, but remains attached to this in a modified form, appearing as minute yellowish spherules. Nevertheless, jaundice may be produced by agents which do not lead to this peculiar modification of hæmo-

globin. Hence he concludes that this alone will not suffice to explain, and he is driven back upon an assumption, satisfactory in some respects, but unsatisfactory so far as it remains an assumption, that jaundice, apart from the usually accepted obstructive form, depends upon capacity of the poison occasioning the blood changes to excite catarrh of the bile ducts.

Both Stadelmann and Hunter are, however, it may be, a little too advanced in their views as compared with the basis of facts upon which those views are founded. It is true that they have proved that a considerable and important number of cases originally classed as hæmotogenous jaundice can no longer be rightly regarded as such. But must we give up entirely the class of jaundice produced essentially by hæmolysis and production of pigment in the blood? Is it not possible that certain (icteroid rather than icteric) conditions are in reality not dependent upon abnormal change in the liver itself, even if some change be present therein? Certainly a main function of the liver is to remove modified blood pigment from the circulation, but is it capable of removing all such pigments? It has still to be shown, so it seems to me, that that the icteroid condition associated with malaria and pernicious anæmia is clearly due to deranged function of the liver. It may be that this is the case, but our present assumption that it is, is based upon a chain of reasoning in which some of the links are imagined rather than properly forged.

Thus, then, the results of the last few years lead to the following modifications of Murchison's classification of forms of jaundice:

I. *Hepatogenous icterus, (due to obstruction of the biliary passage pure and simple, without associated destruction of the red blood corpuscles.)*

1. By foreign bodies—gall-stones and parasites.

2. By inflammatory tumefaction of the duodenum and duct ("catarrhal jaundice").

3. By stricture and cicatricial obliteration of the duct.

4. By tumours closing the orifice or growing within the duct.

5. By pressure on the duct from without.

II *Hæmo-hepatogenous icterus, (due to excessive destruction of the red corpuscles, with accompanying (catarrhal) obstruction of the bile capillaries).*

1. By poisons—phosphorus, arseniuretted hydrogen, toluylenediamin, pyrogallic acid, etc.

2. Acute yellow atrophy of the liver (by analogy with phosphorus poisoning).

3. In extensive burns and scalds (Hunter).

III. *Forms of icterus in which the pathology has not yet been satisfactorily elucidated,*

1. Epidemic jaundice and Weil's disease. These conditions are almost certainly hepatogenous and should probably form a sixth class in division I., namely, that of obstruction due to catarrh of the bile capillaries.

2. Jaundice of paroxysmal hæmoglobinuria.

3. Icterus neonatorum, benign non-septic cases.

4. Jaundice following upon injection of water, glycerine, etc.

5. Jaundice of yellow fever.

6. Jaundice of pyæmia and septic fevers.

7. Icterus neonatorum, septic cases. (In all these, from 2 to 7 inclusive, we are probably dealing with hæmo-hepatogenous cases although it may be that 5, 6 and 7 are with epidemic icterus to be classed in a special division among the hepatogenous.)

8. Jaundice of malaria (not including catarrhal duodenitis complicating the disease).

9. Jaundice of pernicious anæmia.

10. Icteroid conditions associated with wasting diseases.

The balance of evidence is perhaps in favour of grouping 7, 8 and 9 with the hæmo-hepatogenous, nevertheless evidence is still wanting to prove any obstruction to the excretion of bile pigments in these cases, or any back flow of bile from the liver cells.

There is great difficulty in properly classifying certain categories of jaundice, *e.g.*, the malarial and icterus neonatorum. This is due to the fact that the condition may be of several forms. Thus, for example, Icterus neonatorum may be (1) benign, (2) septic, (3) obstructive, (congenital) from syphilitic hepatitis, &c.

J. G. Adami.

Ophthalmology.

Ophthalmia Neonatorum.

Cohn, Hermann. "Zur Verhütung der Augeneiterung der Neugeborenen."—*Centralblatt für Augenheilkunde,* April and May, 1895.

Silex, P. "Statisches über die Blennorrhœ der Neugeborenen."—*Zeitschrift f. Geburshilfe u. Gynœkologie.* XXXI. Heft 1. 1895.

May, Chas. H. "The prevention and treatment of ophthalmia neonatorum and the necessity for more efficient legislation to prevent blindness from this cause."—*Medical Record,* Feb. 16, 1895.

That we are far from the desired for perfection in the prevention and treatment of this direful malady, the publication of the above articles during the past year strikingly evinces.

Cohn's paper is rather of the character of a defence of the Crede method, and is the outcome of the congress of the medical section of the Silesian Society in January last. At this congress Keilmann claimed a great immunity at the University woman's clinic, as resulting solely from the careful washing of the eyelids immediately on the birth of the child's head. He saw no case of primary infection among 500 cases of childbirth. Cohn states that in the five periods between 1886–90 the percentage in his hospital practice were 17, 19, 16, 12 and 10 per mille, but in 1894 again 12 per mille, and in private practice 9, 6, 5, 4 and 3 per mille, and in 1894 again 3 per mille. Hence during the latter period there was no diminution. Silex in his article places his figures at 12 per mille in 1878 before Crede's method was employed, and in 1889 to 1894 still 10 to 12 per mille. This was obtained from about 100,000 patients in the Berlin University Clinic.

In opposition to all this Haab firmly states that in the lying-in institution the percentage of cases before Credes method was employed was 9 per mille, but since its employment only 1 per mille. In the hospitals cleanliness and watchfulness can avoid the epidemics formerly so common. The mother must be warned against the danger of infection, and any suspicious case should be isolated and treated with nitrate of silver. All the nurses must be well-drilled, cleanly women.

As to primary infection from the mother's passage, we should begin prophylaxis by preventing a man having gonorrhœa from marrying

until he is clear of the complaint. If, however, the mother is already infected, the prophylaxis must begin with her in disinfection of the vagina with antiseptic douche, etc., some even going so far as to "scrub out" the vagina with soap and brush. Some obstetricians advise no drug. Thus we see there is a marked lack of unity on this point, but all are agreed as to the necessity for disinfection of the child's eyes, the only question being how.

As the gonococci are on the skin of the lids and on the lashes they get into the eyes on the first opening of the lids. Hence the mechanical cleansing of the lids is the first consideration. This is the method by which Keilmann claims his success, whereas it has failed with other obstetricians. Accordingly the latter have sought for surer means and have tried washing out the eyes carefully with distilled water and cleansing the head with dry napkins (not with the bath water, which may contain washed-off gonococci). Carbolic acid, salicylic acid, sublimate, thymol, etc., have been recommended and again abandoned.

Only Crede's method has been really successful, and it must be employed accurately, as he advised in 1882, as follows: "After tying the cord the child's body is wiped free of the vermix, mucus, etc., then put in a bath, the eyes and eyelids are forthwith cleansed with a fresh napkin, or better, clean absorbent wool, not with the bath water, but with fresh clean water; then open the lids and gently instil one drop of a 2 per cent. solution of nitrate of silver. Any further consideration of the eyes is unnecessary. For instance, if in 24 to 36 hours a slight reddening and swelling of the lids accompanied by secretion of mucus occur, the instillation need not be repeated."

Crede out of 1,160 children had only one case of blenorrhœa, and this resulted from overlooking the instillation of the nitrate of silver.

Cohn considers that the failure or only partial successes of this treatment in other men's hands results from carelessness in some detail on the part of the practitioner or nurse. He emphasizes particularly the necessity of deft, neat-handed nurses, to avoid any chance of abrasion of the cornea, as he rightly considers that the keratitis, which some practitioners complain of as being caused by the nitrate of silver, is solely due to the rough handling on the part of the doctor or nurse. He and Fränkel assert that the nitrate of silver in 2 per cent. solution can amply protect the eyes and yet only cause a slight catarrhal conjunctivitis which disappears on ceasing to use it.

Some assert that the nitrate of silver favours the gonococci through setting up this catarrhal conjunctivitis; accordingly if one eye is already infected, and the other uninfected eye is protected by the instillation of nitrate of silver solution, the gonococci should rapidly

spread to and flourish in this second eye—which, however, is not the case.

Cohn holds that any weaker solution than 2 per cent. is useless, for experiments have shown that the 2 per cent. solution destroys the gonococcus in two seconds, whereas weaker solutions require half to one minute. This use of weaker solutions is the cause of non-success in many cases.

He urges the education of the masses up to the fact of the danger of this eye disease. In Havre, on the notification of the birth of a child, a pamphlet is handed to the persons so notifying with directions as to the treatment of any suspicious eye trouble, and Fränkel has gone so far as to advise the sending of copies to any married couple. In Silesia any purulent eye inflammation in the new-born must be reported forthwith or else a fine is imposed.

At the end of the Congress a commission of medical men was appointed to gather as accurate statistics as possible, and formulate rules for the prevention of this disease.

Cohn finishes his article by saying that blennorrhœa neonatorum can and must disappear from all civilized states. The sum total so far is the cleaning of the unopened lids immediately the head is born, followed by the regulation Crede procedure so soon as the cord is divided.

Dr. May has the same story to tell as has Silex and others : the disease is not less frequent in the Ophthalmic Hospitals since the introduction of the Crede treatment. In some cases saturated boracic acid solution was used instead of nitrate of silver and with good result. The treatment is the hourly and careful washing out of the eye with a saturated boracic acid solution when once the disease is started, and iced application at the outset if much swelling of lids be present, also the daily instillation of 1 per cent. nitrate of silver solution.

May advises the enaction of strict laws as to the reporting of cases and their ensuing treatment.

Infection of the Eyes.

Perles, Max. "Experimentelle zur Lehre von den Infections Krankheiten des Auges."—*Virchow's Archiv.* CXL. P. 209.

At the early death of this talented author a large mass of experiments and studies, complete and incomplete, were left unpublished. These have now in part been brought to light in *Virchow's Archives.*

The experiments were mainly on rabbits' eyes, and were conducted with the greatest care. They prove that pure cultures of

the hay bacillus, of yellow or orange sarcinæ, of saprophytic (not pathogenic) bacilli from decaying sea fish, and finally of the cholera spirillum, inoculated into the anterior chamber or into the vitreous, gave rise to no characteristic lesion of theeye- ball, or at most, occasionally set up a fibrinous hæmorrhagic iritis with synechia. Typhoid bacilli from fresh, strong, virulent cultures injected into the anterior chamber caused hypopyon and occlusion of the pupil by a membrane, but they disappeared in three days. Inoculation into the vitreous produced suppuration, and in the pus, bacilli were found free or enclosed in cells. Cultures of streptococci injected into the anterior chamber caused an exudation into the pupil and chamber, but pus containing streptococci led in twenty-four hours to severe iritis septica, and injection of it into the vitreous caused suppuration. Fresh virulent diphtheria bacilli in the anterior chamber set up purulent exudation (in which within two days the bacilli die) with a kerato-iritis ; in the vitreous the same caused suppuration.

Friedländer's pneumo-bacillus is the worst enemy of the eye ; the slightest trace inoculated into the vitreous sets up the severest panophthalmitis, which within sixteen hours can go on to perforation of the eye-ball ; the same result, but less virulent, occurs on inoculation into the anterior chamber. Inoculation into the cornea causes a characteristic ulcer which can cicatrize ; from the intact conjunctiva no infection follows the presence of this pneumo-bacillus. None of the animals suffered general infection. Directly opposed to this is the result of the inoculation with the Fränkel-Weichselbaum pneumococcus in the eye ; here in a few days the animal dies of general infection, and only after cultivation of the coccus on eggs did he succeed in getting the virulence sufficiently attenuated, so that inoculation only caused loss of the eye from panophthalmitis, and not death of the animal from general infection. Whilst pneumo-cocci are generally only virulent in the fresh condition, the pneumo-bacilli retain their virulence for months in agar or gelatine.

The pneumo-bacilli are found in thick heaps typically encapsuled in conjunctival pus, often enclosed in cells ; in the cornea, in clumps in the lymph spaces ; in the anterior chamber crowded between the pus cells and thence soon passing between the ciliary processes. In exceptional cases they multiply in the vitreous and spread into the retina, but the choroid and vessels remain free. This bacillus is by no means uncommon in the mouth, especially in cases of ozæna, hence in cases of infectious eye disease cognizance must be taken of this factor.

The statement of the results obtained by Perles is followed by

a description of his methods and technique, containing much valuable information.

Conjunctival Diphtheria.

Jessop, W. H. "Two cases of diphtheritic conjunctivitis treated by Klein's antitoxin."—Read before the Ophthalmological Society of the United Kingdom, January 31st, 1895.

Recken, W. "Behring's Heilserum bei Diphtherie der Conjunctiva." —*Centralblatt für Augenheilkunde.* 1895.

Morax, V. "Four cases of diphtheritic conjunctivitis treated with antitoxin serum."—*Annales d'Oculistique*, Vol. CXIII., No. 4.

Jessop's cases were two boys. One, 19 months old, had a patch on the uvula and on the upper and lower palpebral conjunctiva of the left eye. Three injections of Klein's antitoxin were given, 1½ drachms in all. The membrane disappeared without leaving any conjunctivitis behind in five days. There was no local treatment of the eye except distilled water. The second case, 8 months old, had membrane on both eyes and purulent discharge from nose; parotid lymphatic glands enlarged. Two injections of one drachm in all were given. The membrane disappeared in 4 days. Lœffler's bacilli were found in great quantities in both cases.

Recken's case was a boy of 1½ years. He did not use the injection until two days after he had seen the child, and diagnosed the case in the meantime. The right eye had lost the most of its vision by the perforation of an ulcer, and the left eye, which was at first comparatively free, became severely affected. Recken, however, considered the membrane was not so firmly attached in the left eye, although the inflammation remained at its height 10 to 12 days. The left eye escaped ulceration. Whether the comparative failure was due to the tardiness with which the serum was used, or to the nature of this serum, must be an open question.

Morax's cases were four children of 10 months to 6½ years. In three there was nasal diphtheria, and in the eldest laryngeal diphtheria requiring tracheotomy, and also broncho-pneumonia, yet all recovered. There were no corneal lesions in any of the cases.

A Measure for Eye-Strain.

Katz, R. "Uber das Blinzeln als Massstab für die Ermüdung des Auges."—*Klinische Monatsblatter*, May 1895.

Katz starts by mentioning that tiring of the eyes in reading is due to the irritation of the following ocular apparatus: 1. The internal muscles of the eye—in accommodation. 2, The external muscles

especially of the recti interni in convergence. 3. The light perceptive apparatus—the retina. 4. The conjunctiva by the heat rays. The varieties of asthenopia due to these causes are known separately as accommodative, convergent, retinal and conjunctival.

The first and second are easily understood, and the fourth also, as we all know that by prolonged eye work with artificial light hyperæmia of the conjunctiva rapidly ensues. About the third variety there is some difference of opinion. If we gaze at one point on a printed sheet for a long time, we notice that the black type gradually gets indistinct and cloudy ; this points to tiring of the retina, and is a subjective phenomenon. The question remains, can we find a qualitative and quantitative objective expression of the wearying of the eye.

The recovery of the tired retina is rapidly effected by the lid closure, the eye movements and accommodative changes. Each of these factors helps to clear up the type in the above example, and all together make it completely clear. The last two factors work unceasingly in reading, but the lid closure only from time to time. Katz has observed that not only wearying of the retina, but also of the accommodation and convergence result in an increased frequency of the lid drop, and hence the tiring of the eye is evidenced by the frequency of the lid closure. By a series of exact experiments in the physiological laboratory in the St. Petersburg University, gained the following interesting results :

1. Electric light (Edison's incandescent lamp hidden from the eye by a metallic reflector). The book lighted with a 10 to 12 candlepower for 10 minutes at a distance of 30 cm. from the eye. During the first five minutes there were five blinks, whilst during the second five minutes thirteen blinks. The frequency of the blink in the minute $\frac{5 + 13}{10} = 1.8$.

2. Gas light (open flame); other details same as in the first experiment. In the first five minutes 9 winks, in the second 19. $\frac{9 + 19}{10} = 2.8$ per minute.

3. Weak light (so that one could read with an effort at 16 to 18 cm.) First five minutes 25 blinks, second five minutes 43. $\frac{25 + 43}{10} = 6.8$ per minute.

Amblyopia from Acetanilid.

Hibbert, R. "Case of amblyopia from use of acetanilid."—*Memorabilien.* XXXIX. Heft. 2.

A man of 36 years after a night of dissipation took one gramme of acetanilid to clear his head, and feeling no relief took a second gramme

in an hour. The headache was relieved, but vertigo ensued, with loud rushing noise in ears and subjective olfactory disturbances Vision in both eyes rapidly failed. The face was pale, pupils were semi-dilated and did not react to light, and he could barely recognize hand movements at one-half metre. The fundus was pale and its vessels contracted. Pulse 64.

Under inhalations of amyl nitrite and doses of brandy every two hours the patient in the course of eight hours regained his vision, and by noon next day vision was fully normal and the field free.

Evidently the cause was anæmia of the retina and possibly of the visual centres. *J. W. Stirling.*

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

AUGUST. 1895.

CANADIAN MEDICAL REVIEW.

Treatment of tumours of the bladder—F. Grasett, Toronto, p. 43.
Case of hypertrophic muscular paralysis, J. T. Fotheringham, Toronto, p. 45.
Notes on the Medical Military Service—G. S. Ryerson, Toronto, p. 47.

THE CANADIAN MEDICAL RECORD.

The present status of the electrical treatment of fibroids—A. Lapthorn Smith, Montreal, p. 244.

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THE CANADIAN PRACTITIONER.

Treatment of pulmonary tuberculosis—Delaski Marr, Ridgetown, Ont., p. 639.
Indications for electrolysis in angeioma and goitre—C. R. Dickson, Toronto, p. 644.

THE CANADA LANCET.

The economics of prostitution—Woods Hutchinson, Des Moines, Iowa, p. 1.
How vaginal douches sometimes cause severe accidents—Donald B. Fraser, Stratford, Ont., p. 10.
Preferable method of sterilization and storage of catgut—J. Coplin Stinson, Hamilton, Ont., p. 11.

THE MARITIME MEDICAL NEWS.

President's Address, Canadian Medical Association—Wm. Bayard, St. John, N.B., p. 183.
Blindness from ophthalmia neonatorum—J. G. Nugent, p. 192.

LA CLINIQUE.

De l'alimentation des enfants—Paul E. Prevost, Montreal, p. 43.
La digitale—S. Z. Gauthier, St. Ephrem d'Upton, P.Q., p. 48.

MEDICAL NEWS, SEPT. 28TH.

Tongue traction as a cardiac stimulant—H. A. McCallum, London, Ont., p. 345.

ARCHIVES OF PEDIATRICS.

Some forms of eruption simulating scarlatina—A. D. Blackader, Montreal.

DOMINION DENTAL JOURNAL.

Epulis—A. H. Beers, Cookshire, Que., p. 244.

NORTH CAROLINA MEDICAL NEWS.

Have we any medical facts?—John R. Hamilton, Port Dover, Ont., p. 145.

The Treatment of Tumours of the Bladder.

In this paper two cases are recorded, the first, a woman aged 48, had been passing blood, supposed by her to be an alteration in the menstrual flow, for nine months. When seen she was extremely weak from the loss of blood. The bladder was opened through the

anterior vaginal wall and a small growth removed by the finger-nail and forceps from the lower and back part of the bladder wall in the vicinity of the right ureter. No sutures were put into the bladder and the patient made an excellent recovery.

The second case, a farmer aged 60, had suffered for nine years from periodical attacks of severe hæmaturia, but without pain until recently. Supra-pubic cystotomy was performed and a soft growth about the size of a small apple removed. Hæmorrhage was severe. Progress was good for a time, when perineal cystotomy had to be performed. The nature of the growth is not given in either case.

A Case of Pseudo-hypertrophic Muscular Paralysis.

This case, an Englishman aged 27, shows plainly the intermission in the progress of the disease. He was at his worst till puberty and then for eight or nine years was able to lead a fairly active life. His body is fairly healthy, except with referrence to the nervous system. There is disorder of the power of motion only, sensation being undisturbed. The calves of the legs measure an inch more than the thighs, the muscles in the latter region being atrophied. The gluteal muscles are small and soft, the prominence of the lumbar muscles exaggerated, and the curve of the lumbar vertebræ, if anything, a little too marked. Hypertrophy of the infraspinati and deltoids wanting. The mental powers are unimpaired. Reaction of degeneration is not seen, but the patellar tendon reflex is quite abolished on both sides. There is no ankle clonus. He cannot rise from a chair without using his arms, and on sitting down drops into the chair suddenly. The attempt to rise from the kneeling position is the characteristic one of "climbing up upon his legs." He is the seventh child of thirteen ; two brothers are similarly affected, the eldest aged 40, very much worse, and the youngest, aged 20, much less than he is. Father dead, was intemperate ; mother living and in fair health.

Blindness from Ophthalmia Neonatorum.

This paper is an elaborate statement of the statistics of blindness in Canada, and the author points out that in a very large percentage this condition is due to ophthalmia neonatorum. He strongly advises circulating a public warning against this disease, and that legislative steps should be taken in this country, as in England and in some parts of the United States, to endeavour to stamp it out.

Tongue Traction as a Cardiac Stimulant.

In June, 1892, Dr. J. A. Mullin, of Hamilton, in a discussion on chloroform before the Ontario Medical Association, said that he regarded forcible pulling on the tongue several times as the most power-

ful excitor of respiration. This was some time before Laborde, of Paris, recommended "rhythmic tongue traction" in asphyxia. The author, making use of the suggestion, resorted to the manipulation in anæsthetic accidents with animals used in physiological demonstrations. A number of dogs, cats, and rabbits were anæsthetized and experimented upon and it was soon determined that tongue traction is a powerful cardiac stimulant. The author is led to conclude that its mode of action is on the cardio-accelerating centre in the medulla, and he is satisfied that in restoring cases of asphyxia, it will succeed, when all other methods fail, because it acts, as both a respiratory and cardiac stimulant. It could and should be combined with some good method of artificial respiration in anæsthetic accidents, asphyxia or syncope from any cause.

Some Forms of Eruption Simulating Scarlatina.

In this paper, read at the meeting of the American Pediatric Society, the writer states that the presence of a scarlatinal rash, going on to desquamation and associated with pyrexia does not of itself warrant the diagnosis of scarlatina; not even although it should present a certain amount of superficial tonsillitis. Cases will arise where an absolute diagnosis is impossible until some days have elapsed, and the physician should be extremely cautious less he too rashly condemns a child to quarantine and the family to all the suspense and worry connected with such a proceeding. Among the simplest of the scarlatiniform rashes that may lead to possibility of error in diagnosis, are the erythemata resulting from the administration of certain drugs. Of these the rash produced by belladonna is well-known. Salicylic acid and its compounds are more frequently credited with producing an urticarial rash than a scarlatiniform erythema, but a case is here reported where a rash of that nature was produced. The rashes of phenacetin and phenazone are usually patchy in character, but cases may occur which give rise for some hours to the fear lest they should prove to be scarlatina. Copaiba, oil of turpentine, iodoform and many other drugs are also reported to have produced such a rash.

Allied to the rashes produced by drugs are the transitory eruptions due to the accidental absorption of toxines from the alimentary canal or elsewhere, and the rashes following the use of enemata. Transitory erythematous blushes or distinct rashes are occasionally seen in cases of tonsillitis and diphtheria; and in septicæmic conditions in children. Cases of erythema roseola may become distinctly scarlatiniform, but the rash is transitory and is not uniform over the whole body, the throat is also quite free. Acute desquamative dermatitis is another condition which may lead to error. The most important of the rashes

simulating scarlatina are met with sometimes in epidermics of rubella or rotheln. In general the rash in this disease resembles measles rather than scarlatina, but there are cases where the rash is distinctly scarlatiniform, and where an important factor for correct diagnosis is time.

The points which should influence us in making a diagnosis are that in rubella there is much less disturbance of the nervous system, the rash on the lower extremities shows a distinctly patchy condition, with well defined or slightly raised margins, or some times assumes an almost morbilliform appearance, which is never the case in scarlatina. There is but slight congestion of the throat and the cervical glands are almost invariably enlarged early. The well-known "strawberry tongue" of scarlet fever is not seen. In all such cases absolute isolation should be insisted on until such time as a positive diagnosis can be expressed. *Kenneth Cameron.*

Reviews and Notices of Books.

The Urine in Health and Disease and Urinary Analysis. By D. Campbell Black, M.D., L.R.C.S., Edin., etc. Philadelphia: Lea Brothers & Co. 1895.

Another publication is added, under the above title, to the rapidly increasing number of guides to microscopical and chemical medicine considered from a clinical standpoint.

Following upon the lines of the German text-books, Dr. Black has compiled a very useful and well classified volume of interest, not only to students and practitioners, but also to those engaged in special researches.

Introductory chapters deal with anatomical and physiological considerations in some detail. The various tests are well arranged and explained in a readable form; in addition useful plates and tables are appended.

A serviceable chapter is devoted to the elementary examination of urinary calculi.

It is regrettable that so little space is allotted to the bacteriological examination of urine, to which the writer gives but a passing reference.

The polariscopic method of the quantitative estimation of sugar, although in high favour in nearly all the European clinical laboratories, is not explained, while occasionally further details might be desired in some of the more elaborate tests.

In general, however, it is but fair to say that the author has well succeeded in his aim at "conciseness, and the treatment of the subject from the practical and clinical standpoint." C.F.M.

Disorders of the Male Sexual Organs. By Eugene Fuller, M.D., Instructor in Genito-Urinary and Venereal Diseases in New York Post-Graduate Medical School, etc.; pp. 241. Philadelphia: Lea Brothers & Co. 1895.

We regret that this work should have been given such a misleading title, for it leads one to expect too much from it. It deals with only one part of the male sexual organs, namely, the seminal vesicles. It gives the anatomy, physiology and pathology of the vesicles, while a chapter is devoted to the prognosis and treatment of the inflammatory diseases which affect this part. A number of cases are quoted at the end of the book, with a view of illustrating the various points touched upon in the body of the volume.

The work is illustrated by a number of plates which are reproductions of photographs of dissection, but we think it would be better if they were drawn in a more diagrammitic manner, as they would then gain in clearness what they lost in artistic value.

The proof-reading is a little careless, as for instance, on page 90, we notice shoeback for horseback.

Still the work is an excellent one on a subject which has not, as yet, received much attention, and a perusal of it will reveal reasons why some cases of gonorrhœa are so difficult to cure.

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Narcotic Addiction. By Stephen Lett, M.D., Medical Superintendent of The Homewood Retreat, Guelph, Ont. Reprinted from the *Canadian Medical Review*, Toronto, July, 1895.

The New Sanitary Division of the Weather Bureau. By Hon. Mark W. Harrington, Chief. Reprinted from *The Health, Sanitation and Climatology of the Southern States* (Washington, D.C.), for April, 1895.

Circular No. 4. Climatology. Information relative to the investigation of the influence of climate on health.

Circular on the Care and Disposition of Persons Found Unconscious on the Streets or Elsewhere. Prepared by a special committee of the Medical Society of the County of Kings, N.Y. Reprinted from the *Brooklyn Medical Journal*, June, 1893.

Paroxysmal Sneezing. By W. Scott Renner, M.D., C.M., Buffalo, N.Y. Reprinted from *Buffalo Medical Journal*, August, 1895.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Annual Meeting.

The twenty-fifth annual meeting was held on Friday evening October 4th, 1895.

Dr. G. P. Girdwood, President, in the chair.

There were present : Drs. J. G. Adami, D. B. Alexander, J. H. B. Allan, T. J. Alloway, G. E. Armstrong, G. A. Berwick, A. D. Blackader, E H. P. Blackader, G. A. Brown, F. Buller, J. C. Cameron, K. Cameron, G. G. Campbell, F. R. England, D. J. Evans, J. J. Gardner, W. Gardner, G. P. Girdwood, N. D. Gunn, D. F. Gurd, H. D. Hamilton, W. F. Hamilton, J. Alex. Hutchison, J. M. Jack, R. C. Kirkpatrick, H. A. Lafleur, F. A. L. Lockhart, C. F. Martin, W. Mills, J. A. Macphail, J. B. McConnell, R. T. McKenzie, J. Perrigo, A. Proudfoot, T. D. Reed, T. G. Roddick, G. T. Ross, F. J. Shepherd, A. L. Smith, J. Stewart, J. W. Stirling, W. J. Telfer, A. S. Wade, G. Wilkins, and C. F. Wylde ; forty-five in all.

The minutes of the last annual meeting were read and confirmed.

Report of the Treasurer.

Dr. J. M. Jack, Treasurer, read the report, which showed the receipts to have been $609.26, and the expenditure $672.45 for the year. There was a cash balance of $155.25 in the bank. The assets were estimated at $684.25 and liabilities at $72.49.

Report of the Secretary.

Dr. G. Gordon Campbell, Secretary, reported that the session had commenced with 130 members ; 13 new members were elected, 3 died, 3 resigned, and 18 had been removed from the roll, making the present membership 119. There were besides 20 temporary members.

The attendance showed a marked improvement, the average of 33.25 of the previous session increased to 40.3, an increase of 7. There were 19 regular meetings and the smallest number present at any meeting was 18 and the largest 63.

Report of the Librarian.

Dr. F. A. L. Lockhart, Librarian, stated that he found it impossible to keep the library in proper order while there were so many unbound journals lying about and such a small amount of shelf space. He expressed the hope that some one would come forward and offer

to bind those journals which were of value, as the Society was unable to do so. The journals on file, for the same reason, had been reduced to three, *The Lancet, The Medical News,* and the *American Journal of the Medical Sciences.*

The following donations of Medical Literature had been received :

1. Miscellaneous journals left anonymously in the library.

2. *Robert's History and Practice of Medicine,* donated by Dr. F. W. Campbell.

3. Complete volumes, unbound, of *British Medical Journal,* 1891, Vol. II., 1892, Vol. I. ; *Lancet,* 1891, Vols. I. and II., 1892, Vols. I. and II. ; *New York Medical Journal,* 1891, Vols. I and II., 1892, Vols. I. and II. . *American Journal of Obstetrics,* 1891 and 1894 ; *Medical Record,* 1891 and 1894 ; *Medical News,* 1891, Vol I. and II. ; incomplete volumes of various medical journals ; donated by Dr. A. D. Blackader.

The incomplete volumes had been useful in supplying missing numbers in other series of journals.

Dr. T. G. Roddick having asked of the librarian the probable cost of binding the volumes mentioned, kindly donated the twenty dollars considered sufficient for that purpose.

The following officers were elected for the session 1895-96 :

President—Dr. A. D. Blackader.
1st Vice-President—Dr. F. G. Finley.
2nd Vice-President—Dr. J. W. Stirling.
Secretary—Dr. G. Gordon Campbell.
Treasurer—Dr. J. M. Jack.
Librarian—Dr. F. A. L. Lockhart.
Council—Drs. G. P. Girdwood, J. G. Adami and G. E. Armstrong.

Annual Address of the Retiring President.

Dr. G. P. Girdwood delivered the annual address as follows:—The proceedings in which you have just taken part warn me that another year has completed its course and it becomes my duty to read the annual address. I have to carry my thoughts back to a year ago when you honoured me by electing me to preside at our meetings, and, gentlemen, before I briefly review the work that has been done in the Society, permit me to thank you, not only for the honour you conferred upon me at that time, but also for the kindly courtesy which I have received from one and all, for assistance so often required, always so cheerfully given, which has enabled me to conduct the the business of the Society with, I trust, satisfaction and benefit to

all interested. But, gentlemen, although I have to thank every member of the Society, I must especially return thanks to the other officers of the Society, who have so largely contributed to the result—the energetic Secretary, the careful custodian of our funds, and the members of the council, one and all.

On looking back over the records of the past twelve months I find that death has been busy amongst our numbers, and we have to deplore the loss of three of our younger associates. Dr. E. A. McGannon, of Brockville, one of our country members, who from his distant residence was not often able to come to our meetings, but always kept us in mind, and forwarded us such subjects and notes of cases of interest as came in his way. Dr. E. E. Duquet, who had devoted himself to the care of those unfortunates who from some cause had lost their reason and become insane, a class of the community whose misfortune appeals to our care and requires the utmost watchfulness and the highest qualities of mind and education on the part of the physician. And Dr. E. P. Williams, who was associated with the teaching staff of McGill College, where he was making a name for himself by his devotion to his profession and especially to its pathological department, who lost his life by accidental blood poisoning whilst fulfilling the duties required of him in the alleviation of human suffering; a young man of bright promise who had endeared himself to those associated with him by his earnest work and his many sterling qualities. Gentlemen, we mourn their loss.

The number on our roll now stands as follows:

Number last year		130
Loss by death	3	
Loss by resignation	3	
Loss by writing off	18	
	—	24
Additions in new members		13
		—
Making a total loss of		11
Our number remaining		119

Our financial statement our Treasurer has read to us. I would that the outlook were brighter, but by putting our shoulders to the wheel and by paying in our subscriptions at the time they are due, we shall keep the Treasurer in funds and be able to carry on any work that may be needed.

We have had 19 meetings with an average attendance of 40.3, an increase of average of 7 over last year; our largest attendance 63, smallest 18. We have had brought before us in all 88 subjects of interest by 38 members, a very good measure of success. Of these,

living cases 16, pathological specimens 40, case reports 13, papers 16 discussions 3. These papers, etc., may be further divided into :

	Medicine.	Surgery.	Obstetrics.	Gynæcology.	Pediatrics.	Dermatology.	Anæsthetics.	Ophthalmology.	Laryngology.	Anatomy.	Physiology.	
Living cases	..	12	..	..	..	1	..	..	..	1	2	=16
Pathological specimens	17	9	2	8	..	..	..	1	..	2	1	=40
Case reports	5	2	1	..	..	1	2	..	..	..	2	=13
Papers	3	4	1	1	3	1	2	..	1	..	..	=16
Discussions	1	1	1	..	..	..	..	..	..	..	..	= 3
	26	28	5	9	3	3	4	1	1	3	5	

We have had amongst these, highly interesting case reports and pathological specimens and results of recent surgical methods and appliances, physiological experimental work, observations of numerous similar cases collected together and the results tabulated, a number of papers, and cases of great interest to those whose time is occupied in general practice, as well as to the specialist in each branch.

The prominent feature of the year was the introduction of the practice, suggested by Drs. J. C. Cameron and J. Bell, of setting apart special nights on which some subject of general interest to the Society has been introduced by three members and a subsequent discussion taken part in by the members generally. This practice, I think, has been so much appreciated by the members as to commend itself to them for future and further extension. I must congratulate the Society on the number of younger members who have brought before us their experience and ideas.

Amongst the subjects to which the Society has directed public attention, one was the practice of spitting about in public places and public vehicles. In this connection a representation was made to the management of the Street Railway Company, to which representation a courteous reply was received, and I see that notices are placed in all the cars against the practice. Upon this subject I think a more energetic protest may be made, and a more public one. I think we might induce the Board of Health to obtain the assistance of the School Boards and teachers to inculcate the dirtiness, uselessness and danger to health of this habit, whereby micro-organisms or dirt in which they may grow are distributed broadcast, and thus encourage

early development of cleanly habits and educate the young to a more cleanly and therefore more healthy life than their predecessors.

The Society this year sent a deputation to call the attention of the Harbour Commissioners and engineers connected with the harbour improvements to the probable source of danger to the health of the citizens by the emptying of the city drains into the slack water basin at present under construction. The attention of the Board of Health was also called to the same question by the Society, and representations made by that body to the authorities.

I think, gentlemen, that our Society ought to have, as my late predecessor has said, a permanent resting place and a home of its own. He pointed out the possibility of some well-disposed and wealthy citizen aiding in the erection of some permanent home. If this should be carried out I think it will be the result of the Society performing public duties by calling the attention of the general public to those steps and to such regulations as will help on public sanitation, and thus bring about a more healthy condition of city and dwellings, and in the end lead to a monetary value in the reduction of the rate of life insurance, or its equivalent, the addition of larger profits on the policy. If we could show an increased longevity as the result of our efforts, I think there would soon be a generous outpouring by the recipients to those who had been the cause.

And then it would be possible for this Society to supply a well-equipped work-room, where the members who are not connected with teaching bodies could be supplied with every convenience for original research and private rooms to work in, as in the Medical Society of Edinburgh.

The Late Dr. E. P. Williams.

The following resolution was passed :

That the President and members of the Montreal Medico-Chirurgical Society herewith tender to Mrs. Williams their sincere commiseration with her in the great loss that she has sustained in the untimely death of her only son, Dr. Edward Parmlee Williams. As a member of this Society, Dr. Williams had shown himself a keen and enthusiastic worker. As Demonstrator of Pathology and Assistant Curator of the Museum at McGill University, and as Assistant Pathologist at the Montreal General Hospital, he had made abundant use of the opportunities presented to him and had been most active in bringing before the Society the results of his investigations. In his frequent publications before this Society he had not simply given promise of future distinction, but, young as he was, had brought before it results of researches which are of abiding interest.

Warm-hearted as a friend, as a comrade always bright and inspiring, and never sparing of himself in the exercise of his profession, this Society mourns his loss, and deplores that he should have been removed from its ranks and from the service of his profession at a time when the enthusiastic work of years was at last beginning to bear fruit. It begs with all respect to convey its sympathy to his widowed mother in her irreparable loss, and to his sister left thus suddenly brotherless.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION

AT ITS NINETEENTH ANNUAL MEETING.

Montreal, September 17, 18 and 19, 1895.

[Reported by C. W. Allen, M.D., Secretary.]

A very successful meeting of this body of specialists was held at the Windsor Hotel, and during the sessions, extending over three days, papers were read by well-known men from various cities in the United States and our own country. It is a matter of satisfaction to us to note that in a social way the meeting was also pronounced a success, and at the last session, held at the Montreal General Hospital, where a clinic was conducted by Dr. Shepherd, a vote of thanks from the members was extended to the gentlemen of Montreal for their highly appreciated attentions.

Address of the President.

Dr. Samuel Sherwell, of Brooklyn, N. Y., welcomed the members present in an address in which he predicted a successful meeting and congratulated them on the fulness of the programme and promised quality of the papers. The chief topic discussed was the preponderance of the alien element in those seeking relief for skin troubles in the public institutions. Interesting statistics bearing upon this question were presented.

The limitations of the microscope in dermatological work was then taken up, and after showing the necessity for clinical investigations in solving many problems, suggestions were made as to the future work of the Association along certain lines of high scientific interest. Constitutional treatment is considered by the speaker necessary in most skin cases, but he would by no means have it employed to the exclusion of local measures ; the two must go hand in hand.

The first paper was presented by Dr. Fordyce, of New York, and included three subjects:

Angiokeratoma of the Scrotum—Raynaud's Disease of the Ears—Lupus Erythematosus Disseminatus.

The lesions of the first case occurred upon the scrotum of a sixty-year-old man and consisted in a large number of dark purple tumours from a pin-head size up, some covered with a somewhat thickened horny layer of epidermis. There appeared to be lacunar spaces filled with blood occupying the papillary portion of the derma. The reader upheld Pringle's opinion that the blood spaces in the rete are caused

by a downward growth of the cells of the layer, causing constriction of the terminal loops and resulting distention. Histologically the author's case agreed with the description of those previously observed.

A linear arrangement of the lesions seemed to follow the course of the vessels of the part. The horny layer of the scrotum being naturally thinner than that of the hands the hypertrophy reached a lesser degree than in the latter case.

Dr. ZEISLER said the case he had reported corresponded to the type described by Mabelli, but differed from this, still he thought the descriptions of the disease might not yet be complete, and additional features might be presented in other cases. He thinks it not unlikely that the scrotum may occasionally be the seat of the affection in the presence of varicocele. He thought great enlargement of the horny layer an essential feature of the disease. In his case it was five or six times as thick as in this one. Keratoma should be marked to make the term angiokeratoma appropriate.

Dr. SHEPHERD had seen many instances of varicosity of the scrotum and in a large proportion there was great vascularity of the skin. He considered the condition a varix.

The subject of the second paper was a man of thirty-nine, presumably syphlitic, whose ears would become suddenly blue and cold, remaining so for several hours. This was followed by gangrene and subsequent cicatrix. Attacks recurred at intervals, and finally a permanent bluish-black discoloration remained as a lasting condition. Syphilis is advanced as a cause. The arterial coats are implicated leading to obstruction in the blood supply, when spasm of the vessel due to cold or other cause is superadded.

Dr. WHITE had observed a case in which the ears were coincidently affected along with the finger tips. He saw no reason for precluding Raynaud's disease on account of the location.

Dr. SHERWELL thought most instances of Raynaud's disease occurred in syphilitics. He had seen a typical case recover under antisyphilitic treatment.

Dr. FORDYCE said that in many of Raynaud's own cases the extremities were free. The term is a general one, including endarteritis, and many other pathological conditions.

In the third paper lupus erythematosus was described as occurring in two women, and disappearing spontaneously during pregnancy.

Dr. HYDE thought we must enlarge the conditions to which we apply the term lupus erythematosus. In one case the lesion of lupus erythematous upon a woman's cheeks disappeared under very simple treatment, and almost immediately a typical lichen planus developed upon the extremities.

The next paper was read by Dr. GRAHAM, of Toronto, upon

Hydroa Æstivale.

with a report of two cases of this rare condition, supposed to be due to sunlight. In the first, a few small, red spots appeared upon the face and hands of a young girl. These recurred as soon as she began to go out of the house; afterwards the lesions became vesicular and pustular, and later became black in the centre and umbilicated, followed by crusting and subsequent scarring. No spots appeared on the hands when gloves were worn. The second case was a blonde who suffered from burning sensations, swelling, and vesicular eruptions when exposed for twenty minutes or more to the sun's direct rays. Malaise, coryza, sleeplessness, and anorexia accompanied the attacks. In this case, sitting near an open window produced the eruption on any exposed part of the body. On account of the affection the patient has been virtually a prisoner in the house for fourteen years. The skin is at times fissured and scaly as in a chronic eczema.

Dr. GRAHAM believes that it is not only the ultra-violet rays, but also the heat rays of the sun which play a part in producing the affection. It is hard to explain without the intervention of the vasomotor nerves how they produce such an effect. These rays seem capable of producing a dermatitis of variable intensity. The amount of necrosis and subsequent cicatrization will depend upon the vulnerability of the tissues and the amount of exposure. Unlike xeroderma pigmentosum, it does not seem to attack more than one member of a family. A covering to the skin which would exclude the light, he said, was almost always effectual.

Dr. ZEISLER spoke of a case he had observed. He thought the condition one of erythema multiforme and suggested atropine as a remedy.

Dr. WHITE would look upon it as a dermatitis rather than as a separate affection to which a particular designation was applicable. No absolute type of lesion is maintained in all attacks.

Dr. BOWEN had examined one such case histologically; the inflammation was here followed by necrosis; the lesions were umbilicated. The microscope showed that the necrosis extended down to the corium. This distinguishes it from erythema multiforme, which is never followed by scarring.

Dr. HARTZELL had seen a case in warm weather where the lesions came in the absence of exposure to direct sunlight. The inflammation was not severe enough to produce necrosis. It differed from other cases only in the degree of inflammation.

Dr. PHILLIPS, of Toronto, had treated the patient described in Dr. Graham's paper, and on invitation spoke of his treatment, which had

been mainly soothing and protective. He thought the ultra-violet rays of light those which produced the effect. He had intended to try their exclusion by covering the parts with bisulphate of quinine in bassorin paste, or to cover the face with some yellow-coloured material.

Dr. JACKSON had had for several years a boy under his care who presented lesions, pittings, and scars of the same affection. He suffered more in winter than summer. This was also the case in Alp-climbers, he believed, in whom an English physician (Bowles) had made a successful use of such a brown ointment as actors use.

Dr. SHEPHERD had within two weeks seen a young lady in Montreal with a dermatitis of three years duration, which would appear on exposure out of doors, accompanied by swelling, bullous lesions, and followed by scarring. He had seen it appear in a fellow-traveller in crossing the Alps.

Dr. ALLEN remembered Dr. Jackson's case, and having frequently seen the boy, could substantiate the fact of the eruption being at times severe in the winter. From his readings he came to believe the chemical rays responsible, and considered exclusion of light the only rational treatment.

Dr. SHERWELL recommended that women so predisposed should always wear yellow veils, and that by so wrapping up the head as to make a virtual developing chamber the disease would be prevented.

Dr. GRAHAM, in closing, said Dr. Bowen's investigations would exclude any idea of the condition being an erythema. He thought the degree of inflammation depended upon the individual rather than upon the length of exposure. *Dermatitis solaris* would, all things being considered, probably be the most appropriate name.

Two Cases of Bromide Eruption

was the title of the next paper, by Dr. JACKSON, of New York, who described a chicken-pox-like eruption beginning on the face and spreading over the body in a young woman who had been shortly before taking the bromide of potassium. Crusts formed and under these a raspberry-like form of elevated lesion which bled easily and upon the legs broke down into indolent ulcers.

The second case, in a child, showed the same raised warty growths covering whole regions of the body.

Dr. HYDE thought pronounced types and aggravated forms of bromide eruptions were seen chiefly in broken-down subjects or in cachectic children.

Dr. MORROW thought any eruption which does not correspond to the classical type of ordinary dermatoses should suggest drug etiology.

Dr. WHITE thought the effect wholly one of individual idiosyncrasy. He had seen a healthy nursing infant affected through the mother's milk.

Dr. HARTZELL thought there was a connection between imperfect circulation, as in heart disease, and the occurrence of the eruption.

Dr. FOX said Dr. Jackson's case at one time resembled hereditary syphilis. The diagnosis would be difficult in a syphilitic child who was taking bromide.

Dr. GRAHAM spoke of the difficulties in instances in which the bromides were given without the physician's knowledge, or in which no history of administration could be obtained.

Dr. ALLEN had seen iodide eruptions closely simulating such fungating lesions as those described. Bromide eruption may appear and persist long after the drug has been stopped. He would accuse nerve effect rather than cutaneous elimination.

Dr. SHERWELL had also seen cases where drug administration was denied, as well as instances from the iodides which were clinically identical with those from bromides.

Dr. JACKSON had since writing his paper seen an epileptic in whom the eruption kept coming out for some weeks after the bromide was stopped.

The next paper was by Dr. BOWEN, of Boston, and was entitled

The Epitrichial Layer of the Epidermis and Its Relationship to Ichthyosis Congenita.

In certain lower animals there is a well-marked layer of cells in the epiderm of embryos, forming a distinct membrane covering the hairs. In man this layer has not received recognition. The reader's attention had been directed to the subject by the observation of Dr. C. S. Minot that certain shreds of fœtal skin contained a layer of large polygonal cells, with a granular body in the centre, and within this a nucleolus. He thought these cells a part of the epitrichial layer described by Welcker in 1864, and since forgotten.

The reader of the paper has found that in embryos of from two to three months the epidermis has an outermost layer of large nucleated polygonal cells of peculiar shape. In the sixth month this layer has disappeared over most of the body. The resemblance of this layer of cells to the epitrichium covering the hairs and the epitrichial layer of certain animals makes the author conclude that they are homologous structures.

A case was related of a child born with a thin, perfectly smooth membrane completely covering it and closely adherent. This began to peel off after five weeks in large strips, leaving normal-looking

skin. There were no fissures as in ichthyosis. This condition seemed to be due to the persistence of the epitrichial layer, and the author believes that similar cases reported by Hallopeau, Grass and Török belong to the same category. Instead of gradually exfoliating and disappearing by the seventh fœtal month the epitrichial layer retains its integrity.

Dr. SHEPHERD, of Montreal, then read a paper based upon

A Remarkable Case of Purpuric Eruption Ending in Gangrene and Apparently Caused by Sodium Salicylate.

A patient in the Montreal General Hospital suffering from acute synovitis, was given three twenty-grain doses of salicylate of sodium when an urticaria-like eruption appeared and soon became petechial. These lesions were followed by deep sloughing, leaving ulcerations slow to heal. The upper portion of the body, especially the region of the shoulders, was mostly affected. There was also an eruption in the pharynx and larynx leading to œdema and alarming symptoms. The eruption disappeared only after thirty days, in some cases passing through the various colour changes peculiar to extravasation. Local patches of gangrene occurred over the shoulders, etc., varying in size up to that of the palm. The patient showing extensive red cicatrices was presented at the meeting.

The general concensus of opinion in the discussion was that the eruption was due to the drug administered.

Dr. BRONSON thought it peliosis rheumatica modified by the salicylate.

Dr. SHEPHERD had never seen a case of peliosis rheumatica which went on to gangrene, but thought such a result might be a matter of intensity.

Dr. HYDE, of Chicago, then read a paper entitled

Does Mycetoma Occur in North America?

This contribution to the study of mycetoma of the foot was based upon the observation of a native of the United States, born of Bohemian parents who had never been outside of the country. It began at seven years, and had lasted thirteen. A hard nodule was first noticed in the skin of the sole, and gradually involved the anterior third of the foot. Fungoid irregular infiltrations were present, each tubercle being perforated by a central canal. They were made up of granulation tissue, with a considerable number of giant-cells in the derma.

The difference between the fungus of mycetoma and actinomycosis, is that the former grows much slower in an atmosphere of hydrogen and in the rapidity with which they take up aniline stain.

A constant symptom is a characteristic deformity of the affected part. There is a notable absence of pain. In a well marked case there is usually a central body, made up of semi-lunar or reniform bodies, traversed by a net-work of mycelium.

The clinical symptoms are : 1. The appearance of blackish or reddish granules of pigment, free, and within the cells furnished by the secretion ; (2) the discovery of particles resembling the roe of fish, either expelled from the sinuses, or imprisoned within the unbroken surface of the skin ; (3) the occurrence of sinuses leading from without inward as far as muscle, tendon, or blood-vessel. Cases of unquestioned mycetoma are on record where none of these features are exhibited.

There are probably several varieties of the ray fungus. There may be an American variety.

Dr. White, of Boston, entitled his paper

An Etiological Puzzle.

He described a tuberculosis of the skin of the hand in a young girl who had cared for a parent who had died of phthisis.

In a second case there were tuberculous lesions of the lobes of both ears developing after the operation of piercing. The friend who had bored the ears died soon after of phthisis. The puzzling point was to determine in what way infection had occurred. In discussion the various possibilities were reviewed without a positive solution being advanced.

Dr. Hartzell, of Philadelphia, read a paper on

A Unique Case of Agminate Folliculitis of Parasitic Origin.

He described in a man of 32 years an oval elevated patch covered with scanty crusts, under which was a bright red, uneven granular surface. Close examination showed the patch made up of inflamed hair follicles. There were some small pustules. Primary pustules appeared at the periphery and increased the size of the patch. A small cavity surrounded the hair in the upper part of the epidermis, and a few spores and mycelial threads were found, occasionally grape-like clusters. The fingers presented larger elements than are usual in tinea circinata. After existing for ten months sulphur brought rapid cure. The case illustrates that trichophytosis may cause extensive painful disease in other locations than upon the hairy scalp. So far as he knew no case of this character in this situation had been previously reported.

Dr. Hyde spoke of severe trichophytosis in sheep shearers contracted from sheep, which took the form of sycosis.

Dr. Fordyce presented a paper on

Drug Eruptions.

The nodular form of iodic eruption was described in a woman where the lesions reached the size of the fist upon a paralyzed limb, the vascular changes probably accounting for the exaggerated size.

Another case was that of a rupia-like eruption due to the iodide of potassium, but simulating syphilis, in a syphilitic subject. The lesions healed under boric acid ointment. A second case of similar nature showed ulcerations which healed when the iodides were stopped. The lesions in both cases corresponded with the anthracoid variety of iodide eruptions. The cases would seem to show that the skin in some persons reacts to iodide in much the same manner as to the syphilitic process.

An erythematous rash following the application of mercurial ointment was next described. Another case was a scarlatiniform erythema which had been mistaken for scarlatina. Another erythema resulted from the internal use of boric acid given in thirty grain doses. There was also present hard œdema of the eyelids.

Dr. JACKSON spoke of a case of supposed scarlatina which was really due to mercurial frictions.

Dr. MORROW, of New York, read a paper on

Urticaria Pigmentosa,

with the report of a case under his observation for twenty years, although the majority of cases show a tendency to disappear after eight or nine years. Factitious urticaria was a constant feature. Lesions resembling minute pigmentary nævi made their appearance as the preceding large nodules disappeared. In its clinical course and anatomical changes the affection differs in many points from urticaria perstans. At the present time it is impossible to say whether the urticarial elevations and pigmentations are expressions of the same or of different morbid processes, conjoined with vaso-motor hyperexcitability. There is probably some disturbance of the trophic centres which regulate nutrition.

Dr. BRONSON spoke of the localized character of the disease in urticaria pigmentosa in contradistinction to the haphazard character of the eruption in ordinary urticaria. The former shows a tendency to recur at certain distinct points.

Dr. BULKLEY thought the two conditions might be combined and that further microscopical study was required.

Dr. HYDE had seen three cases in Chicago, and this very case in New York many years ago. A distinction must be drawn between this and the ordinary form of urticaria, though at present it is expedient to consider them in the same category.

Dr. ALLEN had for several years past a case in his practice. There is an almost immediate eruption of wheals upon removing the clothing, and slight rubbing causes them to run together into large plaques implicating both pigmented spots and the intervening sound skin.

Dr. SHERWELL thought two distinct affections present. He related a case which had existed since early childhood.

Dr. MORROW said factitious attacks could be brought about by nervous excitement, by overheating, and by artificial means. The annullment of ordinary sensibility does not interfere with its development. It occurs equally upon anæsthetic areas.

Dr. ALLEN, of New York, read a paper upon

The Etiological Relation of Erysipelas to certain Lesions and its Treatment.

Fifty cases formed the basis for the remarks upon treatment, while one hundred instances had been studied in reference to preceding skin affection, or solution of continuity of tissue, as furnishing suitable condition for the penetration of the erysipelas germs. Fifty per cent. showed some such lesion.

Special stress was laid upon the adhesive bandage, tightly applied about the patch, as a means of checking the spread of erysipelas. It succeeded in nearly half the cases. Ichthyol in collodion was the best local dressing, and the reader's combined method of application, by covering in all the skin included between the straps was thought a most effective plan. Cases recovered within from one to several days. The straps are supposed to act by pressure upon the lymphatics.

Dr. CANTRELL, of Philadelphia, offered a contribution to

Ulerythema Sycosiforme,

in the preparation of which Dr. Schamberg had taken part. The writers describe a case of this affection to which Unna called attention under the above title in 1889. A man aged fifty-five had suffered in 1886 from a pustular disease of the beard lasting for two years and ending in recovery. In 1891 he again became affected with what seemed to be a non-parasitic sycosis. Two years later a smooth glistening area of atrophic appearance occupied portions of the cheeks, showing complete loss of hair in places. There were no pustules, but over the area were vesicles and blebs which dried into brownish crusts. The affection proved very obstinate, new vesicles appearing every few days. Arsenic aggravated the condition. In these cases a follicular and peri-follicular inflammation exists, which goes on to destruction of the hair-follicle and formation of atrophic scars. Histologically the stratum corneum and lucidum are missing; the

granulosum is well marked; sharply defined cell infiltration is seen, most marked around the hair follicles. We find overgrowth of connective tissue in the papillary layer; few hair follicles and no sebaceous glands are seen in section; and giant cells are absent. The disease simulates, but is not identical with, lupus vulgaris. There are no nodules and no bacilli. The writers agree with Unna in considering the condition a distinct entity and accept the name.

Dr. Robinson, of New York, then read a series of

Studies on Some Dermatological Subjects.

The first case spoken of was one of lymphangioma circumscriptum in a child of twelve years who had the disease from infancy. Coloured drawings showed the cicatrices from operations done at an early age, the spawn-like characters of the lesions, and the presence of blood in some of the vesicles. In a second instance of the same affection the pictures illustrated very extensive vesiculation and a number of blood-like cysts. The cysts were here smaller, the grouping less well-marked than in case one, and no scarring was present. In a third instance the patient was 27 years old. This had existed from birth, but new lesions had of late appeared. Some lesions appear clear, others as though filled with blood. The woman stated that at each menstrual epoch the lesions filled up and became quite red. There was never any associated dermatitis so far as known. In two of the cases the lesions had spread. Not much could be said for treatment.

A series of cases was then discussed with reference to the appropriateness of the names dysidrosis, pompholyx and cheiro-pompholyx. Some observers do not consider the disease as at all special, but as a form of eczema. The speaker was unable to see any resemblance whatever to eczema. Illustrations of an affection with vesicular and bullous lesions on palms and soles, always coming out simultaneously and in regular groups, were passed around. The lesions show the tendency to rupture. They pass away in a few weeks, but return after unusual exertion on the part of the patient. This all opposes a diagnosis of eczema. A second case, in a girl of twelve years, showed lesions of the same character appearing upon the palms and soles. The bullæ at first clear, become yellowish, and disappear after a time without sign of eczema or dermatitis. A picture of large bullæ upon the foot, the speaker thought, should be convincing that the disease was not eczema. The contents of the vesicles were invariably alkaline. Particular stress was laid upon this point because he had understood that Kaposi had of late years shown at his clinic, cases in which the vesicular fluid had an acid reaction, and referred to them as belonging to the class of cases which in America were called

dysidrosis or pompholyx. The microscope showed nothing to indicate a connection with the sweat glands. If there is no connection the term dysidrosis is faulty. He preferred cheiro-pompholyx.

Dr. Elliot thought there was no question that dysidrosis and pompholyx were distinct from eczema. He had seen a number of cases originating from exposure to heat, in persons of run-down constitution, or suffering from nervous prostration. The lesions are deep-seated, without signs of surrounding inflammation, resembling sago-grains, attended with a certain amount of itching, persisting for some time. They correspond in every particular with the lesions of hygrocystoma upon the face, and he could see no reason for considering them connected with the sweat glands here and not when they occur upon the palms and soles.

Dr. Hartzell had observed that pain was a feature of these cases, rather than the itching and burning so characteristic of eczema.

Dr. Bronson had found the fluid alkaline, while the sweat in the same locality was acid.

Dr. Bulkley thought there was a nervous affection producing bullæ which differed from dysidrosis, still many cases of vesicular eczema of the palms, so closely resemble this condition that they are distinguished with difficulty.

Dr. Klotz was not disposed to lay too much stress upon the reaction of the bullous fluid, as there is some reason to believe that sweat, at first of acid reaction, becomes alkaline by remaining in the gland.

Dr. White believed there were two affections of the hand, one undoubtedly dysidrosis, the other we might call eczema.

Dr. Shepherd thought pompholyx quite distinct from eczema in pathology and symptoms. He had seen a case in London which only occurred when the patient, an Australian, came to England. He had seen the condition in medical students from over-work and examination worry.

Dr, Robinson said it was only the grouped lesions which should be called pompholyx. In obstruction to sweat upon the face, there are no subjective sensations. The lesions of hygrocystoma of the face have acid contents, and there is absence of inflammation. In cheiro-pompholyx there is decided evidence of inflammation.

Dr. Elliot said the lesions he referred to were those described by Dr. Tilbury Fox as sago-grain vesicles. His question was, why Dr. Robinson proposed calling these sago-grain lesions occurring on the face hygrocystoma and connected with the sweat glands, but when occurring on the palms, cheiro-pompholyx, and having no connection with the sweat glands.

Dr. Robinson replied that the cases which Fox called dysidrosis, he called pompholyx. In reference to the similarity of the lesions between hygrocystoma and pompholyx, he could only repeat that if the lesions are grouped, symmetrical, not acuminate, confined to the palms or between the fingers, then they constituted the disease called dysidrosis by Fox, and which he proposed calling cheiro-pompholyx. If they are not such lesions then they are eczematous. In pompholyx the lesions disappear in about two weeks when the macerated cuticle exfoliates, leaving a tender surface behind.

Dr. Zeisler said the situation in the palm might make the vesicles hard to rupture. He said the picture showing large bullæ was identical with Köbner's epidermolysis bullosa.

Dr. Elliot said the latter cases were always congenital. The secretions of pompholyx do not stiffen linen as those of eczema do.

Dr. Robinson then showed sections of the skin in a case in which the skin proper was normal but there was marked degeneration of the parenchymatous portion of the sweat gland, exactly similar to that seen in the kidney. He exhibited a sketch of the excretory duct, showing three albuminous casts in it. Albuminous and granular matters were observed in the coil as well as in the excretory duct. In cases of bromine and iodine rashes it might be well to study the condition of these glands, as he thought it likely they might be found to be the seat of the earliest stages of these lesions. The casts lying in the excretory duct, as shown in the sketch passed around, he considered unique.

Dr. Zeisler, of Chicago, read a note on

Antiparasitic Treatment of Eczema,

pointing out that many of the well-known and tried remedies, such as salicylic and carbolic acids, thymol, tar, etc., were determined parasiticides. He then gave his personal experience in treating eczemas with strong antiparasitic drugs, which was decidedly favourable to such treatment without denying the value of constitutional, hygienic and dietetic measures. He had found Cutler's mixture of equal parts of iodine, carbolic acid and chloral of especial value. He advanced this as a type of remedy or combination which would be found of service. He also mentioned encouraging results from creoline.

In the discussion some speakers favoured the view that most eczemas are parasitic, while others could not accept this theory, claiming that micro-organisms are found in eczemas as upon the healthy skin without etiological significance.

Dr. White said there was no evidence that eczema is ever a parasitic disease. Most reliance is to be placed in the older remedies.

Dr. BULKLEY thought there were two sides to the question. He becomes more and more convinced that there are local causes for eczema. We cannot exclude parasitism, because we cannot prove the parasite.

Dr. KLOTZ had found 50 per cent. watery solutions of ichthyol beneficial. He did not believe in ointments. A caustic potash solution to remove the *débris* is often necessary before remedies are applied.

Dr. WIGGLESWORTH thought proper constitutional treatment too much neglected. The general nutrition of the skin must be improved. He gave his patients minute instructions concerning everything that might bear upon the condition.

Dr. ROBINSON thought catarrhal dermatitis a more appropriate term until we can classify the conditions according to their causes. He thought most of them parasitic, but some were due to internal irritation. In diabetes and the uric acid diathesis internal treatment may cure an eczema, but that is no reason to exclude a parasitic local cause.

Dr. SHEPHERD thought most cases were due to micro-organisms. Internal treatment alters the conditions of the affected part and perhaps makes them less vulnerable, so that what produces an eczema at one time will not at another.

Dr. GRAHAM spoke of eczemas arising from internal causes, and instanced a universal eczema with hepatic symptoms and a gall-bladder filled with gall-stones. In another case the liver was found studded with tubercles and in a state of fatty degeneration.

Dr. SHERWELL favoured constitutional, but used also local treatment.

Dr. ZEISLER thought a new era was dawning in the treatment of eczema. The parasitic theory had many able supporters. A combination of drugs often seems to act better than single remedies. He could not grasp the connection between dieting and the cure of severe local inflammation.

Dr. ELLIOT, of New York, read a paper on

A Further Study of Alopecia Præsenilis or Præmatura and Its Most Frequent Cause.

Heredity, he said, plays a small part in producing early alopecia. Only four incontestable instances were found in over three hundred cases treated. Over 90 per cent. are due to the one disease, eczema seborrhœicum. There was included in the paper read a preliminary report upon the bacteriology of seborrhœal eczema, based upon the observations of Dr. Morrill, of Pepperell, Mass., who had isolated two varieties of diplococci, both of which inoculated upon healthy subjects produced lesions characteristic of the disease. One was a non-chromogenic organism which produced pityriasic manifestations, the

other, chromogenic, produced lesions covered with yellowish greasy scales. Both together caused greasy crumbling scales. These experiments, the reader thought, showed the really parasitic nature of the affection.

Dr. JACKSON had claimed for several years that seborrhœa was at the foundation of a large proportion of cases of alopecia.

Dr. ZEISLER believed seborrhœa the most frequent cause.

Dr. WHITE said in the vast majority of cases the conditions were not present which would warrant the term dermatitis. He thought the percentage of hereditary cases large, and that frequent washing of the head had something to do with loss of hair.

Dr. BULKLEY was convinced of the parasitic origin in a large number of cases. He advocated coarse dark bread and the avoidance of fine white flour. Resorcin was of great service.

Dr. WIGGLESWORTH spoke of the importance of diet. He did not believe in heredity, but favoured contagion as a cause, and warned against the careless use of brushes, &c.

Dr. ROBINSON did not think the condition a dermatitis, but rather an hypertrophy of epidermis causing pressure, and thus impeding hair growth. He had found what he called the staphylococcus epidermis albus, an organism very difficult to remove from the skin, and wondered if it had any relation to that found by Dr. Morrill. He had injected pure cultures into the scalp and produced patches of baldness.

Dr. BOWEN is not convinced that the dermatitis in these cases is primary and predominant.

Dr. SHERWELL thought the paper an important one, and that the report should receive careful consideration.

Dr. ELLIOT said Dr. Morrill's germ was a diplococcus and not a staphylococcus.

Election of Officers.

President, Dr. A. R. Robinson, of New York ; Vice-President, Dr. F. J. Shepherd, of Montreal ; Secretary and Treasurer, Dr. C. W. Allen, of New York ; Member of Council, Dr. J. T. Bowen, of Boston.

An afternoon session was held on the nineteenth at the Montreal General Hospital, by invitation of Dr. Shepherd, where he presented a number of interesting cases, including :

1. A very aggravated instance of acne indurata, with keloidal formations disfiguring the whole face.

2. An extreme case of varicose veins of the leg, upon which Dr. Fox, of New York, took the opportunity of demonstrating his circular elastic bandages, which the patient stated gave him decided relief.

3. Lymphatic stasis of the arm in a man.

4. Xanthoma tuberosum in a woman.

5. Ichthyosis hystix.

6. A case of elongation of leg in a patient who has had for years a pustular and ulcerative skin eruption attended by scarring; exhibited by Dr. A. Hutchison.

These cases were examined and discussed, and Dr. Fox explained the utility of his bandage, which consisted in a series of rings constructed from elastic webbing, and varying in circumference according to the portion of the limb which they were intended to surround. They are to be fitted from below upward, each overlapping the other so as to make an even firm bandage.

Dr. KLOTZ, of New York, read a paper on

The Infected Scratch and Its Relations to Impetigo and Ecthyma.

The slight skin affections occurring in daily life deserve attention as well as the rare diseases. The condition which for the present is designated as the infected scratch has no place among the diseases recognized by the Association, although it is so commonly met with, especially in public practice.

Disseminated lesions of different size characterized by irregular pustules, thin blackish crusts or moist surfaces covered with pus. There is no symmetrical arrangement or grouping. There may be slight loss of substance under the crusts. In adults the lesions are usually on the lower extremities, in children about the face. Some source of irritation can usually be found. The habits are usually faulty and pediculosis is commonly present. No doubt suppuration is due to infection with pus producing cocci. Impetiginous eczema is a diagnosis often made to cover such cases. Bockhart's "accidental impetigo" seems identical with the author's "infected scratch." In most instances the author is inclined to consider ecthyma as an aggravated form of the infected scratch.

From 1877 to 1893 inclusive there were reported to the Association 2,612 cases of impetigo, It is considered highly improbable that these are to be looked upon as instances of Duhring's impetigo, which is considered rare. Probably a large number were instances of infected scratch. He would gladly see the term impetigo abolished, and suggests pyodermia circumscripta superficialis, of which we could distinguish two forms, the idiopathic and the traumatic.

Dr. White, of Boston, read a paper on "The Prevalence of Germ Dermatoses," and Dr. Bulkley, of New York, on "Sleep in Relation to Skin Diseases," the abstracts of which have not come to hand.

After the usual votes of thanks the meeting adjourned.

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THE MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

We give in this number an interesting report of the meeting of the above mentioned Association held in this city in the month of September last. The meeting was in every way a most successful one, both as regards number of members attending and value of papers read. The members of the Association were entertained at luncheon on the afternoon of the second day, and afterwards driven about the city. The last session was held at the Montreal General Hospital, where Drs. Shepherd and Hutchison shewed a number of interesting skin cases, which were examined and discussed by the members. This Association, which is composed of the leading dermatologists of America, has done much to advance our knowledge of skin diseases during its existence, now nearly twenty years. Among its members are such men as Duhring, of Philadelphia ; J. C. White and Wigglesworth, of Boston ; Bronson, Bulkley, Elliot, Fox, Morrow, Piffard and Taylor, of New York ; Hyde and Zeisler, of Chicago ; Atkinson and Morison, of Baltimore ; Hardaway, of St. Louis ; Corlett, of Cleveland, and many others. The Society consists of about thirty-five members all in active dermatological practice.

The next meeting will be held at the White Sulphur Springs, Virginia.

LAVAL UNIVERSITY.

The official opening of the New Building of Laval University in this city, which took place on the 8th October, proved to be highly successful.

The Rev. J. B. Proulx, the Vice-Rector, occupied the chair and discharged his duties in a very creditable manner.

The first speaker of the evening was Dr. Rottot, the Dean of the Medical Faculty. His address was an able account of the recent advance in scientific medicine. He also dwelt on the past medical history of Laval University and the prospects for the future.

Addresses were also delivered by the Revd. L. Colin : Judge Jetté, the Dean of the Faculty of Law ; Rev. C. Lecocq, Dean of the Faculty of Theology ; Mr. Nantel, Mr. J. J. Curran, the Lieut.-Governor of the Province of Quebec, and by Mgr. Ed. C. Fabre, the Archbishop of Montreal.

The new building of Laval is a beautiful structure situated on St. Denis street, and will, when completely furnished, be a home of which any University may be proud. We congratulate the authorities of the University on the energy and spirit they have displayed in erecting such a fine structure, and heartily wish them success in their endeavours to place the Montreal branch of Laval in a position to adequately meet the educational wants of the rising generation of the French-Canadian population.

The American Year-Book of Medicine and Surgery is to be ready for delivery by the beginning of the year. It will be edited by George M. Gould, A.M., M.D., assisted by a staff of American physicians and teachers, and will be published by the well-known firm of W. B. Saunders, of Philadelphia. It aims to place before the physician in a convenient form an epitomization of current literature made by competent writers. Not only will the contributions to American journals be reviewed, but also the discoveries reported in the leading medical journals of Great Britain and Europe. These reviews will include only what is new, and the treatment presented will be synthetic and dogmatic. The illustrations will be carefully selected with a desire to fully illustrate the text, while adding to the attractiveness of the volume. We wish Mr. Saunders success in his new venture, which, coming from such a source, should command a large circulation.

Obituary.

THE LATE PROFESSOR HOPPE-SEYLER.

To the list of illustrious men who have recently joined the great majority must be added the name of Felix Hoppe-Seyler, Professor of Physiological Chemistry in the University of Strasburg, whose death on the 10th of August last, left a great blank in the scientific world, and sent a pang of regret through the hearts of scores of this great teacher's former pupils. The end was the more painful to them as it had been arranged to hold a jubilee in a few months, when the veteran investigator and beloved teacher would have completed his 70th year.

Hoppe-Seyler graduated after thorough studies under many distinguished teachers, including Johannes Müller, in 1850 as doctor of medicine, and in 1854 became prosector of anatomy at Griefswald.

In 1856 he became Virchow's assistant (chemist) in the Pathological Institute at Berlin. This was really a very important event for Hoppe-Seyler and the medical world, inasmuch as it probably determined the career of this young chemist and physician. It moreover does infinite credit to the foresight of the great pathologist, and stamps him as one of the prophets of medicine. A few years later the young chemist went to Tübingen as professor of chemistry, where he remained till he migrated in 1872, after the close of the Franco-Prussian war, to the recently founded University of Strasburg.

His new laboratory was a beautiful and admirably arranged building, and none probably appreciated its beauty and its facilities more than the distinguished worker himself, for when the present writer had the pleasure of spending a winter in this institute in 1883-84 the old laboratory was pointed out to him—a sort of dungeon in the basement of the Anatomical Institute. Nevertheless, from this miserable workshop teemed forth the results of research after research, and, in fact, in it were laid the very foundations of physiological and pathological chemistry, though much had been previously done in Tübingen. The researches there undertaken and carried to a successful issue by himself and his pupils were published, in collected form, under the title of *Medicinische Chemische Untersuchungen* in 1877. In 1881 his *Physiological Chemistry*, the most exhaustive text-book on this subject extant, appeared. The author is, however, best known,

perhaps, by his *Practical Handbook of Physiological Chemistry* which passed through many editions.

Hoppe-Seyler's laboratory was the resort of students from all lands, and many of these are famous in the department which their master may be said to have established, while still more have made use of the knowledge and investigating power acquired under his guidance to advance the cause of scientific medicine in ways too numerous to attempt to detail.

Probably no man ever came under the influence of this remarkable teacher who was not greatly impressed by him, alike as a scientist and as a man.

The writer spent in his beautiful new laboratory, within a few feet of the great Strasburg fortification wall, a winter which proved one of the most pleasant and profitable of his life, for which he has to thank the genial assistants in this and other laboratories, among them Dr. Thierfelder, now in charge of physiological chemistry in the Physiological Institute at Berlin, but most of all the veteran teacher and investigator who was ever the soul of the place.

When one comes to consider how difficult it is to adapt chemical methods to the needs of the medical student and the general practitioner, one wonders at Hoppe-Seyler's success in this direction as evidenced in his Handbook.

It was his custom to visit the laboratory, in which his pupils worked, at least twice a day. He gave personal attention to every student, and while there were in my time two assistants to whom we might refer, the professor did not relegate even the most elementary workers to the assistants. The veteran teacher approached each man with a bright face, and his inquiry often took the form of "*Nun?*" This we all understood to be the signal for a recital of the details we had been endeavouring to carry out.

Though he understood and read English, he rarely attempted to speak in that language, but the writer has never heard any German use his mother tongue in a way so easy for a foreigner to understand.

The professor was a man of method and even, when no longer young, of apparently boundless energy. His knowledge of the literature of his own subject was complete, and his criticisms were pointed and just. These qualities, with an enthusiasm, singleness of purpose and unrelaxing persistence, associated with good natural mental endowments, go far to explain the enormous amount of successful work accomplished throughout a long life, and which old age did not seem to diminish, for he was a teacher and investigator to the last. He was the originator and the editor for the now twenty years of its

existence of the *Zeitschrift für Physiologische Chemie*, the most valuable periodical of the kind published.

Hoppe-Seyler's work included almost every conceivable topic in physiological and pathological chemistry and was not confined to animal life alone : and no better illustration of the assiduous cultivation year after year of a single field can be found than his work on the pigments of the blood.

The writer happened to be a worker in the new Physiological Institute when it was publicly opened with a remarkable address by the great pioneer himself in the presence of the *élite* of the entire university, and so aroused was he by the address that he translated it on his return to Canada and published it, with the consent of its author.

Professor Hoppe-Seyler's career has always been, like the man himself, an inspiration to those who have studied the one and fallen under the personal influence of the other. What a noble illustration of powers well used, of a genial, kindly and unusually courteous bearing combined with inflexibility of purpose and high ideals ! What fruit for the world of the past, the present, and the future, from his honest, steady, well directed work ! The man will live in the hearts of his pupils, one of whom the writer would, were he worthy, gratefully subscribe himself. *Wesley Mills.*

THE

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Original Communications.

GALL-STONE SURGERY.[1]

WITH A REPORT OF A SUCCESSFUL CASE OF CHOLEDOCHOTOMY.

By GEORGE E. ARMSTRONG, M.D.

Assistant Professor of Clinical Surgery, McGill University; Surgeon to the Montreal General Hospital; Attending Surgeon to the Western Hospital.

Sims made a distinct advance in surgery when he perfected the operation known as cholecystostomy. To Tait, more than to any other man, is due the credit of popularizing the operation. With the aid of antiseptic surgery the operation of cholecystostomy has been so perfected that Mayo Robson was able to report fifty-seven cases with only three deaths. Each one of these three fatal cases was complicated by malignant disease. Kehr had forty-nine cases with forty-five recoveries, the fatal cases being complicated with suppurative cholangitis, or malignant disease. Montreal, so far as I know, can present an equally good record. I am not aware of any fatal case of cholecystostomy occurring in Montreal where malignant disease was not present. In fact the operation as now performed by those of experience may be almost said to be without mortality. Even in those cases where the gall-bladder is so small and shrunken that it cannot be brought to the edges of the abdominal incision a communication can be established between the opening in the gall-bladder and the abdominal incision by the use of omentum, or by what seems to answer equally well, a drainage tube surrounded by iodoform gauze. The immediate closure of the opening in the gall-bladder and allowing it to drop back into the abdomen, while perhaps the ideal operation in suitable cases, is still open to the serious objection that at present we are often unable in any given case to say

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

that it is a suitable one. It is probably impossible to be absolutely certain that the cystic and common ducts are patent, or to be certain at the time of operation that the bile in that case is sterile. We know that, sometimes although not often, it does contain the common colon bacillus and other pathogenic germs.

I think it can now be stated that long persistent jaundice does not indicate that uncontrollable hæmorrhage need be feared in operating. If malignant disease be present, however, there certainly is great danger from hæmorrhage, both at the time of operation and subsequently. It is the presence of the malignant disease rather than the cholæmic condition of the blood that is to be feared.

I would like to emphasize the fact that cholecystostomy in the absence of malignant disease is a safe operation, because I think that Kehr is correct when he says that many patients are spending more or less time at Carlsbad who could be much better and more satisfactorily treated upon the operating table. Recurrence is rare; I have never seen a case of recurrence reported. I also think that the long-continued presence of gall-stones in the gall-bladder and ducts may under favourable conditions act as a cause of carcinoma in their neighbourhood.

Cholecystostomy has been sufficiently often performed now to show that it is not in all cases sufficient and all that could be desired. In some cases bile continues to be discharged through the abdominal opening even when the gall-bladder opening has been, as it always should be, attached only to the peritoneum and transversalis fascia. In these cases there is generally an obstruction, usually a gall-stone obstruction, in the common duct.

To remedy this condition cholecystenterostomy or the establishment of a communication between the gall-bladder and some part of the small or large intestine has been performed.

The mortality after this operation, which was reported by Billroth to be 50 per cent., was reduced by Lücke, of Strasbourg, to 31 per cent., and by American surgeons to 11 per cent.

It seems now to be the general opinion of surgeons that this operation has been too frequently performed. It is not altogether satisfactory. The objections to it are (1) its danger; when an opening is made into the intestine the danger of septic infection is at once much increased; (2) the possibility, especially if the communication is made with the colon, that pathogenic germs may pass up to the cystic duct and liver; (3) that an accumulation of bile may take place on the liver side of the obstruction of the common duct and convert that portion of the duct into an unnatural gall-bladder, and (4) that the bile is lost,

so far as serving any useful purpose in the system, unless the communication is made high up in the small intestine.

For these reasons attempts have been made, with considerable success, to remove stones from the cystic, common, and hepatic ducts at the time of the first operation, if found and located, or at a second operation, if the cholecystostomy has been completed, and the bile continues to escape by the abdominal opening after a reasonable time has been allowed for it to close.

I should like to report here that in two of my cases of cholecystostomy the bile continued to flow in considerable quantity from the abdominal wound, in one case for six, and in the other eight months after operation. Not all of it, however, seemed to escape, for the stools were fairly well coloured. The opening in each case was made to close by sealing daily for about a week with cotton wool and collodion. So that the persistence of the flow of bile for some months is not always a proof that there is an obstruction in the common duct.

The cases already reported of removal of gall-stones from the cystic, hepatic, and common ducts demonstrate that such a procedure is good surgery and a very safe and satisfactory operation.

Dr. Hans Kehr (Halberstadt) has in five cases removed stones from the cystic duct at the primary operation by incision of the duct and its immediate suture. In two cases he did a second operation, opening the abdomen in the linea alba, and removed in one instance a stone from the cystic, and in the other, one from the common duct, followed always by immediate suture of the openings in the ducts. He advises attaching the gall-bladder to the abdominal wound for drainage during the healing of the incision into the ducts, in order that there may be no tension from an accumulation of bile until the ducts are soundly healed.

Dr, Elliot, of the Massachusetts General Hospital, reports two cases, in one of which he removed a stone from the hepatic, and in the other from the common duct, suturing the ducts immediately after the removal of the stones. Both cases recovered perfectly. Dr. Abbe removed a stone from the common duct, the patient making a good recovery.

In the following case I removed a gall-stone from the gall-bladder and also one from the common duct with a most satisfactory result:

Mrs. M., æt. 51, married and the mother of nine children, was sent to me by Dr. Elder. She had been a strong, active woman until two years ago, when from some unknown cause she suffered from a

painful condition of the thigh, which was followed by an abscess in the groin.

In January, 1894, she had her first attack of biliary colic. For four months she continued deeply jaundiced. During the past year she lost between forty and fifty pounds in weight. She also complained of great weakness, shortness of breath on exertion and dimness of vision.

The operation was performed on the 27th of June, 1895. On the 31st of August she had gained twenty pounds in weight and the gall-bladder was discharging a small quantity of bile. During the last week in September Mr. M. told me that the opening had closed ten days before and that his wife was apparently in perfect health.

I made a vertical incision, beginning about the end of the tenth costal cartilage and came readily down upon the gall-bladder, which was moderately distended. I pulled it up to the abdominal incision without much difficulty, and after protecting the general peritoneal cavity with gauze packing, opened the gall-bladder and removed a single moderate-sized stone. Then with my finger I felt along the cystic and common ducts and at once came upon a hard mass, evidently another gall-stone, situated in the latter about midway between the cystic duct and the duodenum. I found that to remove it through the abdominal incision already made would be difficult. I therefore made another transverse incision opposite to the common duct from the upper end of the vertical incision to the median line. This enabled me to get down to the stone without difficulty, and after packing about the point to be incised with gauze I made a longitudinal incision in the common duct directly over the stone, which was then removed. I then placed a small piece of iodoform gauze in the common duct towards the liver, to stop the flow of bile while the sutures were being introduced. The opening in the duct was closed by two rows of silk sutures, and a glass drainage tube open at the end and surrounded by gauze was carried down to the suture line, but not allowed to touch it. A small strand of iodoform gauze was passed down through the tube so that it just lay upon the suture line. The tube was brought out of the abdominal incision below the gall-bladder. The edges of the gall-bladder incision were attached to the edges of the abdominal incision to allow of free flow of bile during the healing of the incision in the duct. A rubber drainage tube was placed in the gall-bladder. The transverse incision was closed with three rows of sutures. The patient made a most satisfactory recovery and is now free from jaundice and in good health. The opening into the gall-bladder is closed.

Perhaps Dr. Elliot's suggestion to place a sand-bag under the back, and thus bring forward the field of operation, may prove to be an advantage.

Tuffier's plan of approaching the common duct from the back seems to me to have little to commend it. The operation cannot be done retroperitoneally, and the abdominal incision gives better access to all the parts to be dealt with.

From what we know of this work the removal of stones from the cystic, hepatic, and common ducts is feasible, comparatively safe and a distinct advance in gall-stone surgery, giving a lower mortality than cholecystenterostomy, and being in its results in every way more satisfactory.

ANEURISM OF THE ARCH OF THE AORTA.[1]

By J. G. Adami, M.A., M.D.

Professor of Pathology, McGill University: Pathologist to the Royal Victoria Hospital.

The specimen about to be described, while possessing a certain amount of interest in itself, is more especially interesting inasmuch as the patient from whom it was obtained at the autopsy had been under observation for several years, and further, had formed the subject of a lecture delivered in the Montreal General Hospital by Dr. James Stewart, and published in the series of *International Clinics*.[2] Thus, apart from the fact that there is a very complete history of the case, the specimen is of value as demonstrating very clearly the explanation of the symptoms noticed during life and commented upon at some length by Dr. Stewart in the above-mentioned lecture. The clinical history of the case is contained in the case-books at the General Hospital, at the Royal Victoria Hospital and at the Longue Pointe Home for Incurables. I shall here give it very briefly, only referring to the special points in connection with the aneurism, for, superadded to this history of the aneurism, there is a long and interesting history of ataxic paraplegia. The patient, James L., first experienced pain in the chest in the early part of the summer of 1891. In the first week in August he began to complain of hoarseness: in the middle of October he entered the General Hospital, and a definite diagnosis of aneurism of the transverse aorta was made, the diagnosis being based upon the following points:[3]

1. Pain of a persistent character in a limited area of the chest (left infraclavicular region) relieved by change of posture.

2. Hoarseness, amounting at times to almost complete extinction of the voice. Upon laryngological examination Dr. G. W. Major found the left vocal cord paralyzed and standing in a mid position between extreme abduction and extreme adduction.

3. Cough of a brassy nature.

4. Pulsation synchronous with, but distinct from, that of the heart. The centre of the pulsatile area was situated at the junction of the second left rib with its cartilage.

5. Tracheal tugging.

6. Marked difference in the pulse at either wrist, the pulsation being far more voluminous on the right side than on the left.

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[1] Read before the Montreal Medico-Chirurgical Society, March 8, 1895.

[2] *International Clinics*, Second Series, Vol. III., 1892, p. 49.

[3] *Vide* Dr. Stewart's lecture, loc. cit.

7. The left pupil was found 2 mm. smaller than the right.

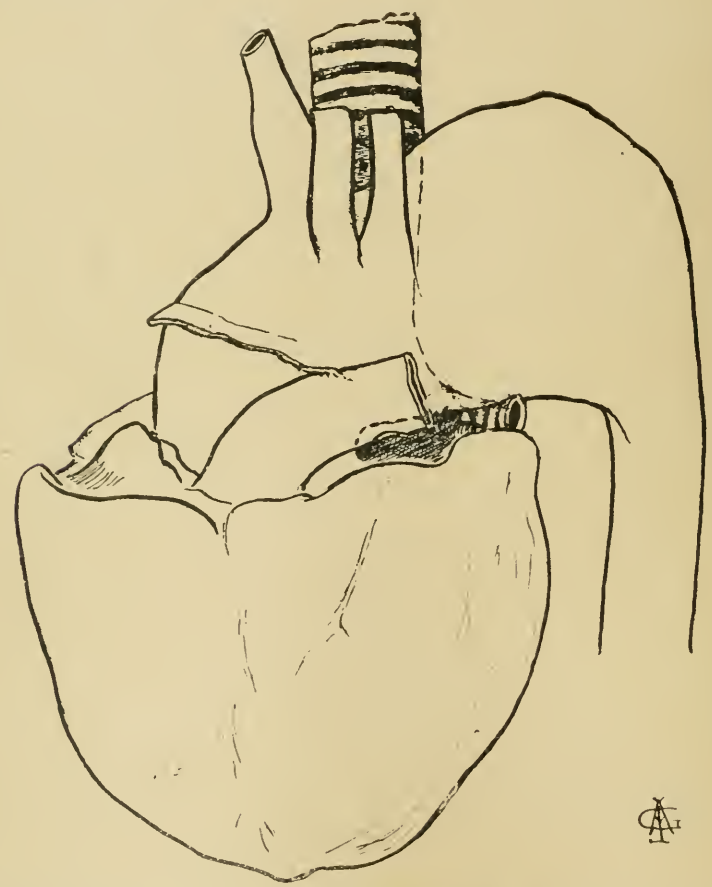
With rest and potassium iodide the pain, hoarseness, and cough disappeared, but even after five months' rest in the hospital there was no essential improvement of the fundamental state. Since 1892 the notes reveal no special addition to this list of symptoms; the ataxic condition, however, became more marked, and the patient's life has been spent mainly in the hospital.

The autopsy was performed at the Royal Victoria Hospital on February the 28th, 1895, the body having been brought from the Home at Longue Pointe on account of the more thorough post-mortem facilities. Upon opening the thorax there was no evidence of absorption of the sternum or ribs; the right lung was very large and full and presented a condition of acute bronchitis; the left lung was not half the size of the right and had a flabby collapsed feel; on section it had a dark collapsed appearance, with some œdema and bronchitis, as in the right lung. The main bronchus was pressed upon by the aortic aneurism, but did not show definite constriction or any sign of perforation.

The aortic arch was seen to be dilated and to have depressed the heart, so that the auricular ventricular groove, at a point just below the origin of the aorta, corresponded to a line joining the upper borders of the fourth chondrocostal articulations. The heart itself was very fatty, and the right ventricular muscle was profoundly infiltrated with fat; the left ventricle was somewhat dilated (as was also the right); the coronaries were dilated and showed patches of fatty degeneration, beginning 2 cm. and 1.5 cm. beyond the origin of the right and left respectively. Immediately above the valves the aorta was already larger than normal (9 cm. in circumference); it rapidly expanded into a general fusiform aneurism, with greatest giving way and some sacculation upwards and backwards beyond the origin of the innominate artery, so that the back wall of the main pouch was formed of the eroded left halves of the fourth, fifth and sixth dorsal vertebræ. The maximum depth of the aneurism at the autopsy was 11 cm. (about 4 inches), its breadth from before backwards was 15 cm. It ended in a line with the under margin of the transverse aorta, the descending aorta being of normal dimensions. Neither in the aneurism itself nor in the dorsal aorta could calcareous plaques be detected, although there were rare fatty patches of fair size. Above and behind, the cavity was filled with dense laminated clot.

Turning now to the more special features of the aneurism it may be pointed out that the aneurism pressed upon and flattened the trachea; the left bronchus, while passing outwards and forwards immediately

beneath the aneurism, appeared at the autopsy to be relatively little affected. Judging from the condition of the left lung the pressure of the aneurism upon this bronchus must have led to relative obstruction with consequent partial collapse of the lung. The left subclavian and left carotid appeared, from the development of the aneurismal sac upwards and backwards, to arise not from he apex of the arch, but from the front of the transverse portion. The innominate artery was the seat of a fusiform dilatation up as far as its bifurcation; the carotid and subclavian, while not aneurismal, were distinctly larger than normal.



The specimen, therefore, demonstrates most clearly the origin of the cardinal symptoms in aneurism of the transverse aorta. The great expansion of the tube upwards, backwards and downwards must of necessity have exerted great pressure upon the recurrent laryngeal and sympathetics of the left side; the position of the left bronchus

also, passing close beneath the aneurism from behind forwards, explains very clearly the production of the phenomenon of tracheal tugging.[1] In this position each expansion of the aneurism with the wave of blood propelled from the heart must have resulted in pushing the bronchus downwards, and it is this downward pull that is felt in these cases when the lower part of the larynx is held between the fingers.

The specimen also shows very clearly why the radial pulse was so much larger and fuller than the left; the innominate was placed in the direct line of the current and wave of blood propelled up the ascending portion of the aorta, whereas the left subclavian had, by the backward extension of the aneurism, been pushed forwards, so as to appear as though given off obliquely upwards from the front of the arch. In such a position, in consequence of the almost valvular orifice, both blood current and systolic wave could enter less easily.

[1] I have to confess that at the time of reading this paper before the Medico-Chirurgical Society I was unaware of how prominent a part had been played by our Montreal physicians in emphasizing the value of this sign in the diagnosis of aneurism of the transverse aorta. Practically, after Surgeon-Major W. S. Oliver (*Lancet*, II., 1878, p. 406) first noted the condition, the late Dr. George Ross, in his article on aneurism in *Wood's Reference Hand-Book of the Medical Sciences*, was the first to lay stress upon its value, and the late Dr. Richard L. MacDonnell was the first in an admirable article in the *Lancet* (I., 1891, pp. 535 and 650) to give a full explanation of its causation. He showed, as this specimen demonstrates so fully, that tracheal tugging is due to pressure by the aneurism either upon the last inch of the trachea or upon the left bronchus.

WHITMAN'S PLATES IN THE TREATMENT OF FLAT-FOOT.[1]

By Charles W. Wilson, M.D., M.R.C.S., Eng.,
Assistant Surgeon, Montreal General Hospital.

To-night, I wish to present to you two cases, illustrating the merits of Whitman's plates in the treatment of the affection called flat-foot.

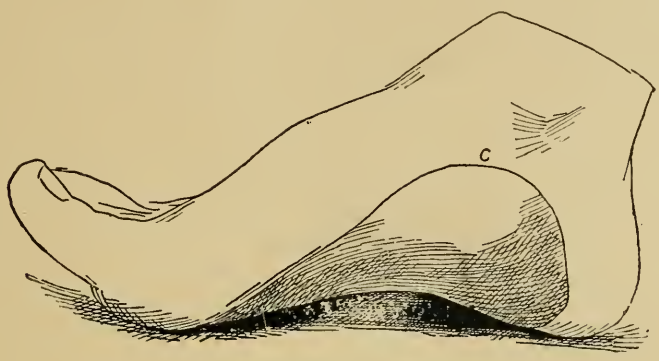
This condition is found in those who are obliged to stand continuously, as nurses, bakers, barbers, waiters, etc. It is characterized by deformity and pain, varying in proportion to the duration of the disease and its degree of severity. Eversion (the abduction of some writers) of the foot, more or less marked, internal rotation of the foot upon its own longitudinal axis, with a more or less prominent internal malleolus, and sinking or obliteration of the arch of the foot, constitute the usual deformity. Pain is usually present, though not always bearing a constant relation in its severity to the degree of deformity: early cases giving severe pain, while those more advanced give little and sometimes none. The pain is singularly regular in its distribution, is well marked in certain locations,—as over head of astragalus, about sustentaculum tali, and at bases of first and fifth metatarsal bones,—and is principally due to pressure or tension on parts unaccustomed to bear it, owing to the altered relations of the articular surfaces, but sometimes to an active arthritis and periostitis set up in the ends of the bones.

More or less sinking of the arch of the foot is the diagnostic feature. In children up to the age of one year there is no apparent arch; from this time the arch gradually forms and rises until puberty, when, or very shortly afterwards, it reaches its full height.

In the forms of this affection met with in early years, constituting "weak ankle," there is usually imperfect development of the musculature because of constitutional disease or rapid growth, and we find the weight of the body overfatiguing the muscles, which ordinarily support the foot, thus permitting the strain to fall directly upon the ligaments, in time stretching them, and producing the characteristic deformity. The principal muscles affected are, the tibialis posticus, flexor longus digitorum, flexor longus hallucis, peroneus longus, and the tibialis anticus, the latter only slightly. The ligaments primarily involved are the calcaneo-astragaloid or interosseous, which does much to support the key stone of the arch.

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

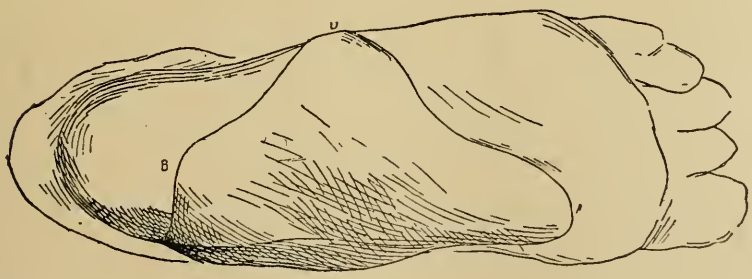
the astragalus, the inferior calcaneo-scaphoid, a most important ligament, supporting the head of the astragalus, and the other ligaments of the plantar surface of the tarsus. These cases can usually be treated successfully by exercises, massage, etc., to improve the muscular tonicity. A favourite method for home treatment is to direct



1. Inside view of plate applied to foot.

the patient to stand with the heels together, toes wide apart, then to rise on the toes slowly, separate the heels and again come down upon them slowly. This to be done ten or twelve times during the day, at intervals of four hours.

In the more acute cases, where great pain is present, where time is an object in the treatment, and where the condition exists, in one who is dependent upon his being about for his livelihood, and especially in heavy young adults, I know of nothing so satisfactory in its results,



2. Plantar view of plate applied to foot.

as the Whitman plate or support. Devices having for their object the support of the arch, such as felt and horse hair pads, wire pads, leather shanks built up on the inner side, iron and steel raised shanks, have been used for a long time, and though often they give

relief, are not to be wholly depended on for different reasons, chiefly that owing to the stretching of the leather they fail to afford permanent efficient support. Insoles of iron, raised on the inside, are used in England, and approach the Whitman plate in general character.

I first saw the Whitman plate applied by Dr. Royal Whitman, himself, in the Out-Door Department of the New York Hospital for the Ruptured and Crippled, while an interne of that institution.

It is necessary, before applying these plates, to reconstruct as far as possible the depressed arch of the foot, and this can be done in the following manner: Seat the patient on a chair, and facing the foot, place the leg between your knees, grasp the heel firmly with the right or left hand, according as the case is a left or right sided deformity, steady it, and with the other hand carry the foot round the arc of a circle into extreme inversion and external rotation; press up the head of the astragalus and scaphoid while holding the foot in its new position. Anæsthesia is necessary in most cases, as it is a very painful procedure.

Put the foot up in this position in a plaster of Paris bandage and leave for two weeks. By this time the arch will have assumed its new position, and a considerable amount of pain and tenderness will have disappeared. Remove the plaster, replace the anterior portion of the foot in its normal position, vaselin well and lay it down upon its outer side, in a bed of plaster of Paris mixed with water, (to which a little salt has been added, to hasten its setting). This soft plaster can be poured upon a square of factory cotton or muslin, covering a ring of loose cotton slightly larger than the foot. With this muslin, the plaster can be raised and applied closely to the foot. The mould should be first made to cover the lower half of the foot only; its edges are then to be smeared with vaselin, and more plaster applied to the upper remaining portion of the foot, thus forming a complete mould. When set, the divisions can easily be opened by passing a knife blade along the smeared edge and prying them apart. The upper part is lifted off, the foot removed from the lower, then the upper is replaced, the toe space stuffed with cotton, a bandage tightly applied over the mould, and it is now ready for the liquid plaster to be poured in to form a cast. This done and the plaster allowed to harden, the mould is removed, and you have a perfect cast of the foot in its new and normal position. This cast is sent to a foundry where a duplicate in iron is made, and thin sheet steel is heated, and hammered on it to fit it exactly, and then trimmed to extend from the ball of the great toe to the inner tubercle of the os

calcis, and from the level of the tubercle of the scaphoid, to the outer border of the foot, narrowing externally, as you see in this one before you. It can then be nickel-plated after polishing. This plate, fitting the foot closely, makes the best possible support, and is very comfortable as you can observe. This plate may, perhaps, be made with advantage of aluminum. Another excellence in these plates is that they can be inserted into any shoe, but preferably one with a low flat heel and straight inner border, laced of course. They do not necessitate the special building up of every pair of shoes; an item of considerable expense. A pair of these plates can be made for about five dollars, and will last for a long time if kept in order, clean, dry, and free from rust, due to sweating of the foot, a trouble which is singularly frequent in this affection.

Both of these cases presented themselves in the Out-Door Department of the Montreal General Hospital for treatment. This one, Minnie Y., aged 20, housemaid, has suffered from this trouble for some years, and was treated in England with insoles, but latterly in this country for rheumatism. She was quite unable to walk, coming into the Hospital from a cab upon her hands and knees; the pain on standing or attempting to walk, was very acute, running up into the legs and thighs, lasting for hours, and interfering with sleep at night. Tracings of her feet were taken, showing the arch completely broken down, the head of the astragalus and tubercle of the scaphoid appearing in the tracing, as a marked prominence, on the inner side of the foot. Manipulation caused great pain, periarthritis and perhaps periostitis being present.

The diagnosis having been made both her feet were manipulated under ether in the manner described, and plaster cases applied. She went home, returned in two weeks, when casts were made and plates constructed. They were applied on their completion one month from the beginning of the treatment, and the patient walked out of the hospital without much pain but with considerable unsteadiness, due to the fact that her feet had been up in plaster for a month. One week later she walked to the hospital, and now, after two months, she is following her occupation without pain and with no inconvenience. She is very grateful for the relief afforded at such small expense, after for months spending all she earned on liniments, etc.

This other case, Mary V., aged 23, domestic, was not so severe, being only six months in duration. The right foot was worse than the left. She first felt the pain in the shank of the foot after a long walk on the ice and was treated for sprain by an elastic bandage and other means. She was incapacitated after standing any length of

time, and was forced to sit down to obtain relief. Massage and muscular exercises might have succeded here ; indeed I think the case a suitable one for such treatment had she had the time necessary to undergo it, but being anxious to again get to work, she was furnished with a pair of these plates. She has only had the last plate applied one week, yet you can observe how well she walks.

The advantages of the Whitman plates are their low cost and wearing qualities, their lightness, their applicability to any shoe, and their uniform and permanent support to the foot.

NOTES ON CHLOROFORM AND ITS ADMINISTRATION.

By W. Anderson, M.D.

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In the course of a considerable surgical practice, dating from the year 1867, I have never once thought of using any anæsthetic save chloroform and have no recollection of having seen ether or any other anæsthetic whatsoever used in its stead; thus I am not able to draw any comparison between chloroform and its rivals. My object in writing the present paper is to set forth a few practical statements concerning chloroform and suggestions for its administration. The desire to offer these suggestions has been prompted by the perusal of the numerous deaths recorded. Much trouble has been taken in recent years in determining the exact place in the animal organism where death from chloroform begins, whether in the respiratory or circulatory system. Clinical facts do not seem to assign all the fatalities to either system alone. In so far as has yet been made plain, cardiac pulsation can persist for a short time after cessation of respiration, but whether this cessation is due to direct action of the chloroform on the medulla, or to failure of the blood to convey sufficient oxygen to the highly sensitive respiratory centre, or to one or both conjoined with enfeebled action of the heart, is open to debate. During deep chloroform sleep arterial tension is very low and arteries like the facial lie nearly as passive as veins, this state being for the most part slowly arrived at; but, if from any cause it should be suddenly attained, this condition would involve danger and might produce a suddenly fatal issue.

It was long ago written "whoever is dead of chloroform is dead," and statements of unsuccessful attempts at resuscitation are painfully common. Every attention, therefore, should be given beforehand to place the patient in the best attainable condition, and to intercept, if possible, danger from these two sources.

Where preparation a day or two beforehand is possible, a "clear" state of bronchial tubes, skin, intestines, and urinary system should be secured, and the urine should be examined, if only for the sake of being able to say that every precaution had been taken to insure safety. Some soft food should be given and the meal completed fully five hours before the time appointed for the administration. One hour before beginning to inhale the anæsthetic the patient should swallow at least half a pint of some nutritious liquid. The most convenient is boiled milk, deprived of all clots, as it readily covers the taste of ammonia, a very large dose of which, preferably four drachms

of the aromatic spirit, should be given in it. For comfort's sake, at least, the face, forehead, and eyelids, should be smeared with lanolin. The territory of the fifth nerve is very sensitive, and it is better to avoid setting up reflex actions amongst the root neighbours of this physiologically composite structure.

On an ordinary domestic table, a large bolster should be so placed that the patient's back, from neck to loins, may rest on it, and three pillows, large, medium, and small, should be placed for the head. The upper part of the body is to be covered with a blanket only, to permit free access to the chest-surface, and to allow all the chest movements to be watched. Everything necessary to a feeling of safety and comfort on the part of the patient should be attended to ; no person lying awkwardly can take the anæsthetic easily, and upon this much may depend. In reference to the method of administering, I have never desired anything except a smooth towel, squarely folded or made into a cone. The object of a bolster under the back of the chest is to assist its expansion, and to render the diaphragm active by stretching its points of attachment.

Three pillows are used so that the head may be lowered to suit the successive stages of narcosis, until at last it rests on the table. Thus there is no bending of the wind-pipe, and secretions tend to pass upwards into the pharynx. In stertor, a thumb placed well back under the chin and pressed forward raises the tongue. The lower the arterial tension the more should gravitation of the blood be favoured, and to accomplish this, I think it would be hard in a simple way to improve upon this arrangement of pillows and bolsters.

The liquid given an hour before chloroforming is seldom vomited ; its purpose is to supply nutrition to the blood during the ordeal, in which hæmorrhage may be a feature. The purpose of the heroic dose of ammonia is to expand the arterial cone and act as a heart stimulant.

With these precautions paleness or lividity is rarely seen, the patient usually maintaining a warm skin, slightly moist, with redness of cheeks and lips.

I have never felt much anxiety in the adult when chloroform has been given in this way. In infancy previous stimulation may be dispensed with. In two boys about ten years of age, however, I tried to do without it. In the first, death very nearly occurred soon after the administration began, and in the second a sudden change in the state and appearance of the wounded surface drew attention to a condition in which pulsation and respiration had become perilously low. The rib cartilages were worked with one hand and the heart jogged with the other, and a quantity of thin secretion was forced out of the nostrils ; after which all went well. Four weeks afterwards there was a second chloroforming of the same subject. Ammonia was freely given and there was no trouble.

Clinical Reports.

A CASE OF PYÆMIA.[1]

WITH SUGGESTIONS AS TO POSSIBLE CAUSE FOR PRESENCE OF A PRESYSTOLIC MURMUR WITHOUT STENOSIS OF THE MITRAL VALVE.

By W. F. Hamilton, M.D.

Assistant Demonstrator of Medicine, McGill University; Assistant Physician, Royal Victoria Hospital.

and

C. F. Martin, B.A., M.D.

Demonstrator of Pathology, McGill University; Assistant Physician Royal Victoria Hospital.

The history of this case is of considerable interest owing to the following conditions which were present:

1. The apparent insignificance of the seat of infection, and the extensive distribution of the secondary symptoms.
2. The presence of a high degree of suppurative myocarditis.
3. The absence of abscess formation in the lung.
4. The presence of a presystolic thrill and murmur without stenosis of the mitral valve.

J. D., aged 21 years, employed as an assistant cook, was admitted to the medical department of the Royal Victoria Hospital on the 26th of July, 1895, complaining of general pains, extreme weakness, and vomiting.

Though he had not been in good health during June and the greater part of July, yet he continued to do his regular work. On the 23rd of July he became acutely ill, the onset of the attack being characterized by chill, headache, pains in the back, nausea, and vomiting.

The history of the patient showed him to be a subject of articular rheumatism as early as his seventh year, with subsequent and frequent attacks of sore throat, as well as recurrences of arthritic manifestations. The last attack of rheumatism occurred in June, 1894. The convalescence therefrom was not satisfactory, as cardiac complications were already established.

Shortly after admission with the complaints enumerated above, the following condition of the patient was noted (July 27, 1895):

He was delirious and irritable, skin dry and hot, face flushed with slight cyanosis about the ears and lips; lips and tongue dry and

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

brown; the abdomen showed no signs of distension; the spleen was not palpable; there was no increase of liver dulness. The skin over the face, trunk, and extremities, presented an eruption, petechial, papular, and at some points pustular. On the ulnar surface of the left forearm, near the lower third, was a raised, slightly reddened patch, 3 cm. in diameter, tender on pressure, somewhat boggy to the feel, and presenting about its centre a small area about the size of a pin-head, at which the skin appeared in the state of recent healing—a recently closed opening without scab-thickening. This region on the forearm was said to be the seat of an injury received a few days before the onset of his illness. The right ankle showed on its anterior and inner aspect signs of a recent scald. It was partly healed and no signs of extending inflammation were seen. At the root of the nail of the right fore-finger there were signs of localized inflammation. The temperature at this examination was 103°, the pulse 120, respirations 30.

On examination of the circulatory system the signs present led to a diagnosis of cardiac hypertrophy due to valvular disease. The murmurs present indicated mitral incompetency with stenosis, as in addition to the apical systolic murmur which was transmitted to the axilla, a presystolic thrill and murmur were detected. In addition, distinct evidence of aortic valvular disease was manifest, inasmuch as both collapsing pulse and a diastolic murmur were observed.

The respiratory system showed, besides increase in the rate of respirations, diminished expansion over the upper half of the left side. There was no dulness on percussion. A few moist râles with diminished breath sounds were heard at the right base.

The urine was passed involuntarily. Its reaction was acid. Albumen was present.

The blood examination revealed the presence of a leucocytosis of the polynuclear variety, five to fourteen white cells being visible in each field. On the 27th and 28th of July cultures were made with agar and also with broth, each day giving the staphylococcus pyogenes aureus.

Progress of the case.—This was rapidly worse. The delirium of the 27th deepened into coma on the evening of the 28th July. The pulse rate increased to 160, while the strength of the beat diminished. The cardiac area was observed to increase toward the left by about one-half an inch. The respirations, 24 on admission, ran as high as 60 per minute on the 29th. The cyanosis became more marked. The temperature followed an irregular remittent curve, ranging from 100·6° to 105·8°. The signs in the lungs were those indicating œdema, with possibly an area of infiltration at the right base posteriorly.

On the 27th and 28th the movements of the left ankle, left great toe, left shoulder, and of the right little finger were painful, and redness and swelling were present over the ball of the left great toe, as well as over the dorsal surface of the little finger of the right hand. There was no diarrhœa nor vomiting during the progress of the case in the hospital.

On the 29th of July, the seventh day of the disease in its acute manifestations, the patient's condition was much worse, and he died at 3.30 p.m.

The question of diagnosis in this case needed not a little consideration to decide. Evidently we had to deal with an infection which was extremely active and virulent. Malignant endocarditis, typhoid fever, pneumonia, miliary tuberculosis, and pyæmia, at first, were all in the category of possibilities.

It was known that the patient was a subject of chronic endocarditis, a suitable condition for the ulcerative form to succeed, but what was the source, and where the entrance of the micro-organism? Malignant endocarditis could not be excluded. Indeed it appeared to be, in all probability, a part of the case.

The rapidity of the onset, the absence of abdominal signs, and the presence of leucocytosis, as well as the character of the eruption, were all against a diagnosis of typhoid fever.

For pneumonia, there were not physical signs sufficient to account for the condition of the patient.

An exclusion of miliary tuberculosis would, doubtless, have been impossible had not positive evidence of another disease been observed.

From the following features of this case, then, a diagnosis of acute pyæmia with, in all probability, multiple abscesses throughout the organs, was made: An injury with evidences of wound of skin surrounded by an area of tenderness and swelling; sudden onset of the illness; rapid advance of the case; albuminuria; hæmorrhagic eruption; joint redness and swelling; leucocytosis of an inflammatory character, and the presence of the staphylococcus pyogenes aureus in the blood.

The following is an abstract from the report of the autopsy performed four hours after death.

The body was that of a well-nourished and well-built young man, presenting the usual signs of death.

On the outer side of the fifth finger of the right hand there was a slightly reddened swelling, which on section presented a small drop of pus lying about the sheath of the extensor tendon. No abrasion appeared externally.

Upon the ulnar surface of the left forearm was seen a bluish-purple swelling 3 cm. in diameter, the centre of which showed externally a point of recent healing. Incision into this allowed the exit of greyish-green pus, situated amid much disin-

tegrated sloughy tissue, while the overlying skin, on the other hand, was much thickened and firmer than normal. The vessels in the neighbourhood were free.

Examination of the various joints and corresponding veins was negative, The abdominal cavity was dry, the visible coils of intestine distended and injected; in various parts of the serosa, were patches of a red and yellow colour corresponding to abscesses formed in and about the vessels of the serosa. The peritoneum otherwise seemed free from inflammation.

The spleen was large and soft and showed numerous miliary abscesses and some necrotic infarcts of small size.

The kidneys were large, of flabby consistence; the capsule, which stripped with slight difficulty, revealed a mottled red and yellow smooth surface upon which were some large anæmic infarcts and numerous small and large abscesses. On section, the cortex presented many miliary abscesses, chiefly about the vessels, though here and there septic sequestra were visible in the papillæ.

The pelvis and ureters were unaffected.

In the intestines there was further evidence of systemic infection, as above described, and also enlargement of the lymphoid structures. Here and there the abscesses had ulcerated through the mucosa, thus causing irregular ragged ulcers of the intestinal wall. The liver was enlarged. showed parenchymatous degeneration, and localized areas of necrosis. Many abscesses, small and large, were distributed throughout the organ, the largest about 3 to 4 cm. in diameter. In the lungs brown induration was the chief pathological condition. No abscesses whatever could here be found.

The heart was of considerable interest. Its pericardial surfaces were rather firmly adherent, so that in their separation much force was necessary, the adhesions being most firm over the anterior septum. Both layers were much thickened, the cavity dry, all the chambers of the heart very greatly hypertrophied and dilated. Subpericardial hæmorrhages and a few foci of suppuration were observed. The tricuspid orifice readily admitted four fingers, the mitral two, while three fingers were inserted with but slight difficulty. The mitral and aortic valves showed great chronic thickening, as did also the tendinous cords and papillary muscles. Upon the mitral, tricuspid, and aortic valves were greenish-grey friable vegetations of a malignant nature, those on the aortic valves being greatest in amount. On removal of these vegetations some loss of endocardial substance was evident. The pulmonary valves were free.

Further, in all the chambers, though especially in the ventricles, there were miliary subendocardial abscesses of the size of pin-heads dotted throughout the surfaces and each seemingly surrounded by a hæmorrhagic zone. Deep incision into the myocardium showed it to be beset with similar punctiform abscesses, also evidently embolic in nature.

The surface of the brain also showed abscesses of small size beneath the pia, causing loss of cerebral substance to a slight extent.

The cord was congested and œdematous, though so far as examined presented no abscesses.

The aural and nasal cavities appeared free from disease; the petrous bones normal.

Cultures taken from the blood, the skin wounds, and from all the other organs gave the same results, viz., in each case a copious growth of the staphylococcus pyogenes aureus.

Microscopic examination of the various tissues and organs merely verified the microscopic appearances, and hence is of comparatively little additional interest.

Our clinical conclusions, based both upon the clinical observations during the course of the malady and at the post-mortem examination have led us to regard the case as one of pyæmia following upon a slight abrasion on the forearm. The date of injury, the amount of

disintegration of tissue out of all proportion to that elsewhere found; further, the inflammatory thickening of the overlying subcutaneous tissue, and the absence of any other visible seat of entry would in all probability warrant such an opinion. Without such an origin it would be almost impossible to do otherwise than regard the case in the light of the somewhat dubious cryptogenetic or so-called idiopathic pyæmias.

As possible objections to our view it may be urged that in the forearm we have merely an additional secondary focus, similar to all the others; yet not only is the condition apparently one of greater duration than the other affections, but further, the wound having had at one time definite connection with the outer air would hardly suggest a secondary focus. That no thrombo-phlebitis was found in the proximal vessels is indeed unusual, yet that the affection may occur without such a coincident event seems to us quite possible.

Nor is the case one of primary malignant endocarditis, for the valvular lesion is of the most acute type, one eminently recent and apparently contemporaneous with the other secondary events of the disease—the old valve lesions rendering this site a *locus minoris resistentiæ*.

Additional features of interest exist in the facts that three different sets of valves were affected, and that although the liver presented ample evidence of infection, the lungs, so commonly involved, showed here no signs of abscess formation. There is another point of no little interest to the clinician, in that the signs observed in the heart and the subsequently found pathological condition fail to correspond, and another example of the difficulty in exact diagnosis of cardiac conditions is afforded.

As described above, among the physical signs present on examination of the heart was a rough murmur, presystolic in rhythm, and well localized to the apex region—in other words, a combination of symptoms very suggestive of mitral stenosis. Yet at the autopsy the auriculo-ventricular orifice of the left side was of normal size, so that it would seem necessary to find some cause other than a mitral lesion to explain the presence of so typical a presystolic murmur. Within a recent date not a little discussion has arisen upon the origin of such conditions as those found in this case, and since Hunt[1] offered the classical suggestion that an aortic regurgitation may induce presystolic murmurs by bringing about an abnormal vibration of the mitral valves, further opinions have been elicited. Thus,

[1] Hunt (Austin), *Amer. Jour. Med. Science*, 1886. Vol. I, p. 27.

Theodore Fisher[1] has cited more than a dozen cases in which an adherent pericardium seemed a possible etiological factor, while Osler[2] and Graham Steele[3] have similar cases on record. A very recent thesis by Phear[4] has volunteered yet another explanation, that a thickening of the tendinous cords and dilatation of the ventricle may cause the two cusps of the mitral valve to be abnormally approximated and thus induce a functional stenosis.

In one of Professor Adami's[5] cases with dilated heart and enlarged mitral orifice there had been observed clinically a presystolic thrill and murmur. Although in our own case there had been present both adherent pericardium and aortic incompetence, it would seem that still another suggestion might be submitted. The heart being enlarged to nearly twice its normal size and the chambers presenting extreme dilatation, the quantity of blood contained by them is correspondingly increased. Under such circumstances there would be a very much greater amount of blood endeavouring to force its way through the mitral orifice, especially with the great hypertrophy seen in the auricle. Hence with a normal sized left auriculo-ventricular opening we have an excessive amount of blood seeking passage through it—in other words, the proportion of blood to the size of the passage makes a relative stenosis of the orifice. It may be further mentioned that in the majority of cases which present a similar set of conditions, very great dilatation has been present, and it would seem that according to the degree of dilatation, that is the amount of blood within the chambers, so there would be a presystolic murmur or not, this sign presenting only when the amount of blood is extreme.

[1] Fisher, *B. M. J.*, April 28, 1894.
[2] Osler, *Trans. Ass. Amer. Phys.*, 1888. Vol. III., p. 138.
[3] Steell (Graham), *Practitioner*, April, 1894.
[4] Phear, *Lancet*, September 21, 1895.
[5] Adami, *Mont. Med. Journal*, April, 1895, p. 789.

A CASE OF SYMPHYSIOTOMY.[1]

By Kenneth Cameron, B.A., M.D.
Assistant Surgeon, Montreal General Hospital; Assistant Demonstrator in Clinical Surgery, McGill University.

The operation of symphysiotomy has been so fully described in the journals of the last few years, and has been so well discussed before this Society on more than one occasion, that it is my intention now only to relate the details of a case that came under my care six months ago. I have waited that time before placing the case on record so that any subsequent ill effects due to the operation might be noted.

The patient, II-para, was a strong, healthy-looking woman, free from apparent deformities. She was a native of Newfoundland, and of Irish parentage; aged 26, height 5 ft. 2 in., weight about 115 lbs. I had attended her in her first confinement on August 26, 1893, when she was delivered without much difficulty, by the aid of forceps, of a small female child weighing seven and a half pounds.

Her second labour commenced at 4 a.m. on April 1, 1895, and at 12 noon, though the pains were frequent and severe, the head had not engaged. At 4 p.m. there was but little change, except that the pains were more severe and she was becoming exhausted. I asked Dr. Allan to give chloroform, and I found the conjugate diameter narrow ($3\frac{1}{4}$ inches), the head large and extremely hard and only slightly engaged in the brim. I applied the Barnes-Simpson forceps, but failed to produce any appreciable difference in position.

Later on I asked Dr. Lockhart to see the case with me, and after failing to produce any result with the axis-traction forceps, and on account of the hardness and size of the head, some further operative interference seemed imperative. We concluded that symphysiotomy was indicated, and I performed the operation in the way usually described. An ordinary scalpel was used to divide the symphysis, cutting from before backwards. The cut ends did not spring apart as is often reported, for the head was not engaged. Dr. Lockhart then extracted the head by means of axis-traction forceps, considerable force being required, the ends of the symphysis separating at least two inches (there was no opportunity of measuring the exact distance).

The child and placenta were removed without difficulty. There were lacerations of both anterior and posterior walls of the vagina,

[1] Read before the Montreal Medico-Chirurgical Society, October 18, 1895.

which were sutured with silk-worm gut. The pubic wound was brought together by six silk-worm gut sutures and covered with iodoform gauze dressing, and straps of adhesive plaster were applied tightly around the pelvis. These were augmented two days later by a broad belt of webbing tightly strapped.

The child was a well-formed male and breathed at once. The various measurements were as follows :

Diameters of the head.

Occipito-frontal	$4\frac{7}{8}$ inches.
Occipito-mental	$5\frac{1}{4}$ "
Sub-occipito-bregmatic	4 "
Bi-parietal	4 "
Bi-temporal	$3\frac{3}{4}$ "
Length	22 "
Weight	$11\frac{1}{2}$ lbs.

The patient made an uneventful recovery. She had to be catheterized for five days, but after that she passed urine without difficulty. The sutures were removed on the tenth day and all the wounds were found to have healed by primary union.

She was allowed to get out of bed on the twenty-first day and to walk at the end of the fourth week. When she began to move about there was incontinence of urine, especially on exertion, and more or less severe pain along the course of the sciatic nerve. The incontinence lasted for a month and a half but gradually ceased, the pain, however, lasted for about four months. For the last two months she has been perfectly free from all inconvenience.

The symphysis seems now to be completely united, as no movements whatever can be felt. She walks well, free from the "waddling gait" described by some writers, and is able to perform her household duties as well as ever.

AN UNUSUAL FORM OF SKIN DISEASE.[1]

By J. Alex. Hutchison, M.D.
Surgeon to the Montreal General Hospital.

W. H. B. entered the Montreal General Hospital, on September 2, 1895, complaining of an abscess in right thigh.

History.—Age 21 years, born in Ontario, and has always lived on a farm. Parents healthy, three brothers and three sisters alive and well. No specific or tubercular history. No history of local injury. When about five years of age patient was put to bed owing to a swelling in upper part of right thigh which suppurated, discharging a large quantity of yellow fluid; this gradually closed and since then he has suffered from time to time from similar attacks, with two or three exceptions confined to the right limb. The left leg has always been free.

There has been no interference with motion, except that caused by pain during inflammatory action. For the past five years the abscesses have appeared on the front of the thigh in its upper third.

Examination.—Patient is a well-built, strong-looking man; walks with a slight limp. The right lower limb is irregularly covered with scars to the number of about fifty, extending from Poupart's ligament to the ankle, being more numerous on the anterior and outer surfaces. The scars vary in size from a pea to a silver dollar, each covered with a thin shiny membrane not containing hair follicles, slightly depressed, white in colour and not adherent to the deep tissues. The skin in this limb is thick, inelastic, more pigmented, and has longer and coarser hairs and large superficial blood vessels; in other parts of the body it is normal.

The inguinal glands are somewhat enlarged on both sides, more markedly on the right. There is a cicatrix over the saphenous opening, causing some deep-seated induration, which may be due to a venous thrombosis.

There is slight tilting of the pelvis to the right. Right limb is $1\frac{3}{4}$ inches longer than left, right thigh 1 inch longer than left, right leg 1 inch longer than left, right thigh in circumference is $18\frac{1}{2}$ inches, left thigh 20 inches.

Pathological report by Dr. Wyatt Johnston:

1. Cultures taken from pus from a spot in active inflammatory process developed a few staphylococcus colonies.

[1] Read before the Montreal Medico-Chirurgical Society, Nov. 1st, 1895.

2. Two guinea pigs were inoculated subcutaneously with a portion of the scar tissue on September 21, 1895. During the next month they remained in good health and increased in weight. On October 25th both were killed. No evidence of tuberculosis or of caseous abscess at site of inoculation was found. The condition was looked upon as one of tuberculosis or syphilis, and the patient had left hospital before the pathological report was received.

Apart from the peculiar appearance of the limb, the increased growth of the long bones of the affected side is interesting and unusual.

AN UNUSUAL CASE OF CHRONIC PLUMBISM.

By A. G. Nichols, M.A., M.D.,
Resident Physician, Royal Victoria Hospital.

The following case presents several features which are of interest, both on account of the severity of the lesions, and their somewhat wide and unusual distribution.

The patient in question, J. P., a joiner, æt. 46, was admitted, under Dr. Stewart, to the Royal Victoria Hospital on October 16th, and was under observation ten days. His complaints were weakness, poor appetite, and loss of power in the upper extremities. Although never a robust man, he had previously enjoyed fair health.

For the past two years the patient had suffered at intervals from abdominal pain, but the more severe manifestations of his illness only dated from March last. At that time he began to suffer from a progressive loss of bodily strength with occasional headaches. Some weeks later pain and tenderness were noticed in the right arm with slight loss of power. He was treated by a physician outside with some slight benefit. The general weakness, however, soon returned with the addition of colicky pains in the abdomen. In August pain returned to the limbs, this time in both arms, but more severe in the right. The arms gradually became weak, and finally the patient became unable to extend his wrist. Very marked pallor was noticed and progressive loss of weight. The bowels were constipated.

On admission, the physical condition was as follows : The patient was in a poor state of nutrition, and very anæmic. The extremities were cold and moist with clammy perspiration. The tongue was dry, fissured, and covered with a thick brownish-white fur ; the breath very offensive and the teeth covered with sordes ; appetite poor and bowels constipated. Temperature 98. The pulse was rapid and varied from day to day, ranging between 88 and 140. There was advanced arterial sclerosis more marked in the right arm than in the left. The heart was not found to be specially hypertrophied ; the aortic second sound was increased. The result of the blood examination showed red cells 2,740,000 per c. mm. ; hæmoglobin 48 per cent. ; no leucocytosis ; slight poikylocytosis. The urine was of medium colour, acid, sp. gr. 1023 ; it contained a small quantity of albumen and a few hyaline casts. The quantity excreted was about 550 cc. per diem.

The nervous system was profoundly affected. A mild grade of saturnine encephalopathy was present. During the day time the

patient sometimes presented a hunted look, but more often was apathetic, and even melancholic. At night he was restless and irritable, and at times noisily delirious, being with difficulty kept in bed. Slight delusions were also noticed. The tongue was very tremulous, and there was a marked tremor about the lips; the head also trembled a good deal. The speech was monotonous and hesitating. There was a fine tremor of the fingers, but in addition there were spasmodic jerky movements of the hands and arms, and to a less degree of the legs. These movements were almost choreiform in character, and were exaggerated on excitement or voluntary action.

In the arms there was a paralysis of a mixed type. In addition to the classic extensor paralysis, with consequent double wrist drop, there was involvement to a minor degree of the Aran-Duchenne group, and of the upper arm and shoulder-girdle muscles, the Duchenne-Erb group. There was complete inability to extend the wrists, and the terminal phalanges of the fingers were extended with difficulty. The extensor ossis metacarpi pollicis, which usually escapes, was weak. The power of the flexors was much diminished. In the Duchenne-Erb group the muscles paretic were the biceps, supinator longus, brachialis anticus, triceps, deltoid, and the supra- and infra-spinati. The pectorals had escaped. In the Aran-Duchenne group the muscles most affected were the interossei, which were much more wasted than is usual to find in cases of lead poisoning. The muscles of the thenar and hypothenar eminences were atrophied to a much less degree, but were very soft and flabby. The muscles most atrophied were the supra- and infra-spinati, the deltoids, the common extensors, and the interossei. Those atrophied in a minor degree were the upper arm muscles, the long supinators, the extensors of the metacarpal bone of the thumb, the flexors of the fingers, and the muscles of the thenar and hypothenar eminences.

There was slight tenderness in the affected muscles which were also soft and flabby. Tenderness was marked along the course of the musculo-spiral nerve.

In the lower extremities no special groups were atrophied, but all the muscles were small, soft and flabby. The muscles were tender on pressure. The power of flexion and extension of the knees was very much impaired, and the muscles were slightly spastic; the knee-jerks were very lively.

No alteration of sensation was anywhere noticed and the Romberg symptom was absent. All the muscles tested gave the reaction of degeneration. The deltoids only reacted to a very strong faradic current; the supra- and infra-spinati and common extensors not at all

to a current short of one causing severe pain. The response to galvanism was increased and the contractions were slow and ample. A. C. C. 7 C. C. C.

Examination of the fundi revealed slight blurring of the disc, probably early commencing atrophy. Vision was normal.

After remaining ten days the patient left and the subsequent course of the case is unknown.

The source from which the lead was derived could not be determined. It was found, however, that one sister had a definite lead line, and a brother, who was a painter, showed also a lead line and presented the characteristic lead anæmia. These facts point to a common source of poisoning and illustrate the well-known fact that certain people have a greater susceptibility to the action of lead than others.

In this case the extent and the distribution of the palsy was quite uncommon. Apparently the extensor paralysis set in first, followed by the paresis of the upper arm and Aran-Duchenne groups. In some cases paralysis of the scapulo-humeral type is primary, but according to Madame Dejerine many cases in which it is secondary to the usual musculo-spiral paralysis, go on to complete generalized paralysis.

The excessive atrophy of the interossei would seem to point to a probable affection of the ganglia in the anterior horns, although it is quite impossible to speak positively on this point. Dejerine mentions only five cases in which lesions were found in the cord, and in only two of them had the muscles of the Aran-Duchenne group been affected. In one of these cases, Zunker's, some atrophy of the anterior ganglion cells was found, but as the cells affected did not correspond to the affected muscular territories Zunker himself did not consider the case proved anything. In the second case, that of Oeller, there were patches of softening in the middle of the anterior horns, but this was attributed to defective hardening, so that this case also falls to the ground. In a case of Oppenheim's however, where the musculo-spiral and aural nerves were involved, the ganglia in the anterior horns corresponding to the affected muscular tracts were affected, and this is the only case which can be considered conclusive. The vast preponderance of evidence goes to show that lead palsy is a peripheral affection.

Whether lead has any effect upon the upper motor segment is unknown. The case here reported, which presented in the lower extremities spasm, increased reflexes, and paresis without atrophy, certainly suggests that such may be the case. According to Gowers such a condition is very rare. Putnam has, moreover, found traces of lead in the urine of persons in whom only paresis of the lower

extremities and increased reflexes, without other physical signs were present.

Fine tremor is not uncommon in long-standing cases of lead poisoning, but the peculiar tremor here described seems to be not nearly so commonly met with from lead as from some other metals.

Lead encephalopathy is not very common. According to Tanqueral des Planches paralysis occurs in about 5 per cent. of cases and encephalopathy in about 3·35 per cent. The symptoms here, noisy delirium, delusions and melancholia, are among the more common effects of lead upon the cerebrum.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

The Sputum in Malignant Tumours of the Lung.

BETSCHART. "Ueber die Diagnose Maligner Lungentumoren aus dem Sputum."—*Virch. Archiv.*, Vol. 142, 1895, p. 86.

While the morbid anatomy of sarcoma and carcinoma of the lung is a subject on which literature is copiously supplied, yet there are but few cases recorded where the diagnosis of such primary growths is made *intra vitam*.

The author working in the clinical laboratory of Professor Eichhorst in Zürich had an opportunity of observing a case where the diagnosis of primary diffuse cancer of the lung was made several weeks previous to death, this conclusion being reached through an examination of the expectoration.

After dilating on the varied characters of sputum in pulmonary diseases, Betschart shows how little reliance can be placed on the colour, consistence, or form of the sputum in the diagnosis of pulmonary neoplasms.

When, however, particles of a new growth in the lung find their way into one of the bronchi and are thus admitted into the sputum, as may occur where circumscribed nodules exist in the lung, then sections of these masses would make a diagnosis easy.

Sometimes, however, one may get a diffuse carcinoma of the whole organ, and the writer asserts that a diagnosis may then be made from the presence of characteristic cells or groups of cells in the sputum, and such an instance is the basis of his paper.

Two cases of sarcoma of the lung are also noted where a correct diagnosis during life was arrived at by section of tumour particles found in the sputum, in each instance small round cell masses being discovered. Only one case had hitherto been recorded of a diagnosis of cancer of the lung by this method. Hampeler found in gelatinous globular masses of sputum certain large polygonal cells with granular

protoplasm, the diameter of the cells being from ·002 to ·025 mm. their nuclei ·012 to·0125.

Dr. Betschart assures us that these alone are sufficient to justify a diagnosis of cancer of the lung and describes in detail his own case. A patient had been admitted to the Zürich clinic with a diagnosis of pulmonary phthisis with encapsulated tubercular pleurisy. The signs pointed to a rapidly advancing consolidation of one lung, and the sputum on examination presented, microscopically, what he considered characteristic, viz., little gelatinous masses, some yellowish and translucent, others more opaque and brownish. Minute examination showed very large epithelial cells similar to those described by Hampeler, and in consequence cancer of the lung was diagnosed.

A report of the autopsy is given, and the lung as described would not appear to differ in any essential from a condition of fibrosis of the lung, while plates of the sections show nothing further than large epithelial cells surrounded by a thickened septa, such as might be expected in a chronic catarrhal pneumonia with much desquamation of the epithelium.

That a diagnosis of cancer of the lung is possible in this way is a subject on which much might be said. Conditions of fibroid phthisis with secondary gangrene of the lung would possibly lead to a similar expectoration, while sections of the lungs would show quite as characteristic appearances as those submitted in Betschart's plates. Wherever, too, there is considerable interstitial pneumonia it would seem quite possible that the alveoli with their altered epithelial cells would be much contracted, giving to the microscopic sections the appearance of an irregular growth with epithelial cells lying amid a fibrous stroma, so that the difficulty in satisfactorily understanding its true nature would often be great. All in all, it seems that there is scarcely sufficient ground for Betschart to inform his readers of the absolute certainty of his diagnosis.

C. F. Martin.

Mono-Articular Rheumatism.

Heidenhain, L. "Mono-Articular Rheumatism."—*Deutsche Medicinische Wochenschrift*, No. 31. 1895.

Prof. Heidenhain, of Greifswald, is of the opinion that mono-articular rheumatism is a much more common manifestion of rheumatism than we are led to believe from the teachings on this point, as presented by such authorities as Strümpell and Niemeyer-Seitz, whose words he quotes.

His opinion is based upon observations of cases in the polyclinic at Griefswald, and especially upon the results of treatment with sodium salicylate. In the arrangement of his statistics he was able to exclude, as possible causes of the joint condition, tuberculosis, osteomyelitis, traumatism, gonorrhœa and syphilis, by history as well as by therapeutic tests, and in view of the results establishes the diagnosis in 38 cases of mono-articular pain and tenderness and movement limitation as so many cases of mono-articular rheumatism.

As to the joints affected the table runs as follows : Shoulder, 13 ; wrist, 5 ; elbow, 4 : knee, 4 ; ankle, 4 ; hip, 2 ; tarsus, 2 ; carpo-metacarpal, 1 ; finger 1 : toe, 1 ; jaw, 1.

Prof. Heidenhain suggests that a cause for many cases of endocarditis may be found in the teaching afforded by his experience here recorded, the reports of which give no account of an attack of articular rheumatism according to the generally accepted diagnosis.

W. F. Hamilton.

Surgery.

Splenectomy.

Spanton. "On splenectomy, with notes of three cases."—*British Medical Journal*, November 2, 1895.

Mr. Spanton reports three cases, the last one successful. He has collected reports of twenty-five cases of splenectomy in leucocythæmia with one recovery, a death rate of 96 per cent. The case that recovered is considered by Knowsley Thornton to have been one of simple hypertrophy. In non-leucocythæmic cases, however, splenectomy is much more successful; of these there are fifty-nine cases reported The nature of the disease for which the operation was undertaken was as follows:

	Cases.	Recovered.	Died.
Hypertrophy	38	18	20
Wandering spleen	9	9	0
Rotated spleen	2	2	0
Lymphosarcoma	2	2	0
Cystic disease, including hydatid	4	4	0
Other causes, including injury	4	3	1

The chief dangers appear to be shock and hæmorrhage. In nearly all the fatal cases death has been due to hæmorrhage.

Mr. Spanton divided the suspensory ligament first in his successful case. The ligament was transfixed, ligatured and set free, and the moment this was done all signs of shock or collapse passed off. He regards this as an important point, as it overcomes the first tendency to shock and at the same time sets free the pedicle proper. He found it subsequently quite easy to deal with the vessels in the pedicle and recommends this method in all cases where it can be done. He advises separate ligature of the splenic artery and vein. He closes his article with the following paragraph:

"When we consider that during the last thirty years, as shown by the table, the mortality with a large number of cases has been reduced from 80 per cent. to 20·68 on the published cases, we may, I think, fairly say that splenectomy has a grand future before it, though the cases in which it must be demanded are few and far between, and it ought not, in my opinion, to be resorted to unless the patient's condition is such a miserable one as to demand it. Every other resource must be well tried first, though up to the present time the results of medical

treatment in cases of true hypertrophy seem to have been most unsatisfactory. The operation can hardly be considered justifiable with the present rate of mortality in any case of small or simple movable spleen."

It is interesting to note that the first two cases were both successful. The first was performed in 1549 in Naples by Zaccharelli, and the second in 1711 in St. Carnigan by Feererius.

Treatment of Dislocation of the Peroneus Longus Tendon.

WALSHAM. "On the treatment of dislocation of the peroneus longus tendon."—*British Medical Journal*, November 2, 1895.

Mr. Walsham draws attention to the unsatisfactory results obtained in the treatment of this rather unusual accident, by pads and specially made boots and leg-irons, and reports the case of a young lady 22 years of age, who whilst skating caught her foot in a hole in the ice, sustaining a severe sprain of the ankle. During the succeeding four years the peroneus during walking would from time to time spring forward with a distinct and audible snap, causing a sharp and momentary attack of sickening pain and lameness. She had worn various kinds of bandages, anklets, and specially made boots, but they had been of little or no service.

Mr. Walsham then performed an operation which consisted in making an incision about three inches in length over the tendon, as it lies behind the external malleolus, exposing the malleolus and lower end of the fibula and turning down from it a flap composed of the thickened fascia and underlying periosteum. The flap was carried over the tendon and sutured to the fibrous tissue lying at the back of the normal groove. Although some suppuration occurred the result was good. Four months after operation she could walk well, the tendon remained in its groove and could be felt sliding in it freely during the various movements of the foot. She could walk five or six miles without lameness or inconvenience.

Traumatic Insanity.

CALE. "Two successful operations for traumatic insanity."—*New York Medical Journal*, No. 880. October 12, 1895.

The first case, a carpenter, 26 years of age, with a good family history, became insane four years after the reception of a blow from a club, the wound being about midway between the fissure of Rolando and the external occipital protuberance, slightly to the left of the median line. The wound suppurated for three months afterwards.

The patient was imaginative, thought his friends were plotting against him, and suffered from attacks of *petit mal*. He would lie when it was decidedly to his advantage to be truthful and he had a mania for stealing.

A large pear-shaped flap was made over the site of the adherent scar; this was elevated with the periosteum, except a small portion which was attached to the bone at the site of injury. The bone was found to be somewhat depressed, as was also the corresponding portion of the internal table; a piece the size of a silver quarter was removed; the dura appeared normal, although the depression of the inner table was quite marked. The wound was closed after the insertion of a few strands of catgut for drainage and the usual dressings were applied. The change in the patient could be noticed as soon as the effects of the chloroform disappeared; his headache had vanished and his manner was decidedly cheerful.

His recovery was uninterrupted and he left the hospital on the twelfth day. Since that time (nearly four years) he has held a responsible position and is to-day in perfect health.

The second case, also a carpenter, aged 33 years, with a good family history, received a blow on the top of the head about the interauricular line from a brick which had fallen about sixteen feet. He was unconscious for about two hours. During the night he became delirious, got up, dressed himself and started out with his gun. This delirium lasted the greater part of the night, but towards morning he became rational. The next evening he wished to go hunting in town. He also insisted on sending his children to school in the late hours of the night. He had a constant headache about the base of the brain, and a few days after the injury his sight became so affected that he had to be led to a physician's office. This condition lasted about four days. He had several attacks of mild mania, which were brought on by the least excitement. He was extremely restless at night, and the administration of narcotics had little effect.

The operation was performed in the same manner as in case one. There were no adhesions, but the dura was somewhat congested. He made a rapid recovery and is working at his trade daily.

Bronchocele.

SHEPHERD. "The surgical treatment of certain forms of bronchocele, with reports of sixteen cases."—*Annals of Surgery*, Sept., 1895.

Dr. Shepherd adopts the method of operating developed by Juellard, Rattman and others, but brought before the profession very prominently by Professor Socin. It is evidently the ideal method of treat-

ing encapsulated or cystic tumours of the thyroid, and a very large proportion of thyroidal tumours belong in this class. The operation consists in enucleation or shelling out the cyst. The most favourable cases are those in which only one side of the gland is affected. Of course all enlargements or tumours of the thyroid are not suited to this form of treatment. For instance, all those cases of diffuse enlargement of the gland, malignant and inflamed goitres, as well as those vascular bronchoceles associated with Graves's disease, need either to be treated by exsection or ligature of the thyroid arteries. Good results are obtained in the diffuse form by feeding with thyroid extract.

Dr. Shepherd thinks that the congestion of the veins is no greater during ether than during chloroform anæsthesia, and in all his later cases has used ether.

In operating Dr. Shepherd makes rather a small opening at first, carefully exposing the cyst wall, recognized by its bluish-white colour. The incision may then be gradually enlarged, the cyst enucleated, and delivered; or a better way generally is to partially enucleate, and then empty the sac of a sufficient portion of its contents to allow of a partial collapse, when further separation can be more readily accomplished and hæmorrhage more easily controlled.

After the cyst or cysts have been removed a strip of iodoform gauze is introduced, which acts as a drain and also exerts sufficient pressure upon the walls of the sac to stop oozing. This is removed in twenty-four hours.

Healing takes place rapidly. The patients are seldom in the hospital more than a week.

Treatment of Fracture of the Patella.

White. "The operative treatment of fracture of the patella."—*Annals of Surgery*, November, 1895.

Keen. "Three cases of wiring the patella for old fracture with division of the quadiceps muscle and chiselling loose the tubercle of the tibia in two of the cases."—*Annals of Surgery*, November, 1895.

In his paper read before the Surgical Section of the College of Physicians of Philadelphia, Dr. White takes the ground that the results obtained by the ordinary methods of treatment are not satisfactory. The causes of failure are divided into three classes.

(a.) Lister believes that non-union is usually due to two factors;

the separation of the fragments by the contraction of the quadriceps muscle, and the pressure of accumulated fluid within the joint.

(b.) Von Bergmann thinks that the atrophy of the quadriceps, due to the pressure of the dressings employed and to the disuse, is progressive, and believes that the condition is responsible for a large proportion of the cases in which it is impossible to extend the limb.

(c) Macewen believes that the chief cause of non-osseous union is the interposition of fibrous and aponeurotic structure, between the fractured surfaces, and that, before such union can be obtained, it is requisite in the first instance to elevate all the tissues which overlie the fractured surfaces, and which prevent them from coming into immediate contact. In explanation of this view, he details cases in which he has found portions of the soft parts lying between the fragments, either forced there by the vulnerating body in cases of direct injury, or driven in by atmospheric pressure when the fracture is the result of muscular violence.

Dr. White favours operative treatment, and discusses the relative merits of the different ways of securing the fragments of the patella in apposition. The suture, Malgaigne's hooks, etc., receive favourable notice, but Barker's method of passing sterilized silk around the fragments, subcutaneously, is the plan adopted by Dr. White in the three patients that he brought before the Society. He claimed that they all had bony union or such close fibrous union that no motion between the fragments could be demonstrated.

Dr. Keen's cases were old cases in which the fibrous tissue connecting the fragments together had stretched in one case to three and a half inches in extension and five inches in flexion. In the second case the distance of separation is not given, but the fracture occurred in August, 1893, and there had apparently been little or no treatment employed until Dr. Keen wired the fragments in March, 1894. In the third case the fragments were separated two and a half inches in extension and five inches in flexion.

These papers gave rise to a very interesting discussion, during which very strong objections were taken by some of the members present against any method of treatment, in ordinary cases, that would expose the synovial membrane of the joint to infection. It was plainly stated that opening the joint to suture the fragments had not only cost patients their legs, but also in several instances their lives also.

Barker's operation is open to the same objection, and has in other hands resulted in suppuration of the joint.

Of course in long standing cases like those reported by Dr. Keen,

the opening of the joint, removal of the intervening fibrous tissues, and suturing the fragments, offers the only chance of obtaining anything like a good result. Perhaps in the presence of a large blood clot, in a recent case, the same treatment might be justified, but these cases are the exceptions.

Too much stress should not be laid on the securing of bony union. It is very doubtful if this is obtained very often by any method of treatment. In some cases where bony union was said to be present, maceration proved the contrary. Besides, there is evidence that good ligamentous union is as strong as bony union, and cases are said to have occurred in which a second fracture has occurred, not at the line of union by fibrous tissue, but at a different level and through the bone.

G. E. Armstrong.

Pharmacology and Therapeutics.

The Treatment of Pneumonia.

Leech, D. J. "Treatment of pneumonia."—*The Medical Chronicle*, September and October, 1895.

Powell, R. Douglas. "On acute lobar or croupous pneumonia; its etiology, pathology and treatment."—*British Medical Journal*, November 9, 1895.

In few diseases have our ideas of treatment changed so radically during the present century as in the treatment of pneumonia, and many of us are inclined to look with some contempt on methods and remedies, which fifty years ago were believed to be all important. A comparison of the mortality rates obtained in the hospitals during the early years of the century, with those under the highly rational treatment of the present day, should, however, make us pause before we express our opinions too strongly.

Dr. Leech, in this very interesting article, reviews the results obtained from various methods of treatment during the past sixty years, gathering his statistics, not only from English, American and Continental Hospitals, but also from army medical reports, and such records of private practice as were available. He concludes that, taking all circumstances into consideration, there seems reason to believe that the hospital mortality which prevailed at the time, when so many of those who suffered from pneumonia were either bled in hospital, or before they came, or both, was not materially greater than at present. Many statistics show, indeed, a mortality gradually increasing during the past six decades, a result which may possibly be owing to the rapid increase in population of some of the larger cities, altering for the worse the average vitality of the patient.

The numerous statistics he quotes show incontestably that whilst general and indiscriminate bleeding, with or without antimony in heroic doses, may have given results in the hands of many, possibly worse than those obtained at the present day, yet under favourable circumstances, a mortality as light as we can at present show in our most successful series has been recorded. As an instance, we would quote the report of Dr. Hughes Bennett, of 129 consecutive cases (1848–1865) with only four deaths. Of the four deaths, all had serious complications, and one had died on the day of admission. The

majority of these cases took antimony, and a considerable number were cupped and bled in the arm.

Speaking at the last meeting of the British Medical Association, Dr. Powell gave an excellent exposition of the more advanced views regarding the treatment of this disease. The routine treatment of the present day, namely, salines with the occasional administration of mercurial laxatives, a liquid, unstimulating dietary, and complete rest in an airy room of proper temperature and degree of moisture, he thinks of distinct value in materially depleting the vascular system from the venous side by increasing the functions of the skin, kidneys, and bowels. He condemns the use of antimony or aconite as directly depressing the heart's action, and among the salines has a distinct preference for the citrates of ammonia and potash, with some excess of ammonia, if necessary, rather than for the acetates, inasmuch as he considers the latter, if given in considerable doses, tend to irritate the pulmonary and bronchial membranes and to increase cough.

He regards it as unwise to materially reduce the temperature normal to pneumonia, (102° to 104°) as by doing so he thinks we favour microbic activity.

Antipyretic drugs unless they tend to restrain microbic activity, are distinctly harmful. In hyperpyrexia the cold bath, the cold pack, or cold sluicings are the only measures of any use, but the bath should be short, so that the temperature be not reduced below 102°. Too much must not be expected from this treatment, as such temperatures as 106° are of themselves often of fatal augury on other grounds.

The treatment of pain brings forward the still vexed question as to the *use of poultices*, and whether they should be hot or ice-cold. While admitting the difficulty of weighing evidence when the conditions of the problem are naturally so varied as those in pneumonia, Dr. Powell says that he has seen no evidence that either have any influence upon the intensity, extension, or resolution of pneumonia. The tendency in hospital, as well as in private practice, is to discard local applications, except for special reasons, and a strong argument in favour of their disuse is that their application involves more or less restraint and fatigue of the respiratory movements by the wrappings necessary to keep them in place. This especially applies to moist applications. Practical experience seems to go with theoretical knowledge in refusing any notable effect to ice applications upon the course of pneumonia. His opinion is against their employment in ordinary cases, on the ground that he has observed increased inflammatory lung infiltration follow their use in hæmoptysis, and that he has

found them distinctly harmful in bronchitis. The *nerve shock and agitation* of the early hours of pneumonia bear a close relationship to the pain present and to the rapidity with which the respiratory surface is being cut off by the extending exudation. To meet both indications the addition of small doses of morphine to the saline mixture is valuable during the first forty-eight hours. After this its use requires careful consideration; on the one hand it tends, to check secretion, to increase cyanosis, and to enervate the patient in the struggle that is before him; on the other hand, in the over-wrought nervous systems with which we have often to deal, the skilful use of morphine may be of much assistance.

In the presence of *active delirium* with prolonged sleeplessness Dr. Powell is convinced that the proper treatment is a full or rapidly accumulating dose of alcohol with food, followed at the right moment by a sufficient dose of morphine with atropine subcutaneously.

In reference to *cardiac failure*, he says that there are three conditions which we have especially to bear in mind as leading up to it.

1. Impaired nerve power on the part of the pneumogastric branches of the cardiac plexus.

2. Impaired nutrition of the hard-working heart muscle from insufficient and badly aerated blood supply.

3. A mechanical tendency to over distension of the right heart cavities, and to depletion of the left cavities of blood.

With clinical evidence of an enlarging and labouring right ventricle, and of a compressible, small, rapid, and vacillating pulse, indicating the presence of one or all of these conditions, we have at hand remedies of great power to do what may be possible in any given case.

Morphine and atropine may be very valuable, if cautiously and properly used, in saving from nervous and cardiac exhaustion, as already stated. Strychnine and caffeine are, however, the two drugs which are of the highest value in maintaining the innervation of the heart in many cases of pneumonia; perhaps in all cases of any severity, a moderate dose of $\frac{1}{50}$ to $\frac{1}{30}$ of a grain of strychnine may be given four or six times in the day, from the fourth to the fifth day onwards through the crisis. In very severe cases the stomach may become paralyzed and acutely dilated, so that in such it is safest and best to administer it subcutaneously.

The effect of strychnine in increasing the power and lessening the frequency of the heart's action is undoubted. Caffeine has been used much less; it appears to have the same effect as strychnine, being, perhaps, on the one hand less reliable, while on the other there is less danger from an incautious dose.

The value of oxygen in the treatment of pneumonia is two-fold. It helps doubtless to keep the patient alive on a small respiratory space, which would otherwise be inadequate for that purpose, but it has also a direct action upon the heart by sending more richly oxygenated blood to its left cavities, and thence to its muscular walls.

Over-loading of the right ventricle, and depletion of the left is the chief cause of death in pneumonia. In a few plethoric people, this overloading may come on acutely in the very early stage of the illness, but we more often see it in the later period, its occurrence being characterized by increasing epigastric pulsation, and smallness and emptiness with increasing rapidity of the radial pulse. The question of blood-letting in pneumonia is rarely raised now, but this condition warrants its employment, either by the free application of leeches or by a moderate venesection. It is in such cases that digitalis also becomes valuable as an addition to the strychnine, for, although it has little effect in diminishing pulse frequency in pneumonia, Dr. Powell is confident that he has seen danger warded off by its timely use. A dry diet, and the judicious use of mercurial and saline purgatives, help further to lessen the burden on the right ventricle.

Referring to the *etiology* of the disease, after alluding to the fact that its prevalence bears no direct relationship to the actual severity of climate, but that 'changeableness' of temperature, and seasonal periods of depressed temperature, have a distinct influence in increasing the number of cases, Dr. Powell states that his experience leads him to affirm that at least one-third of the cases of pneumonia, as we meet them, arise from foolish and thoughtless disregard, especially by elderly people, of simple precautions against chill. He regards as unfortunate, in that it tends to increased carelessness, the fatalistic and entirely inadequate view that we at all frequently acquire pneumonia as we acquire typhoid fever or diphtheria. It is probable that we are always—no doubt more particularly so in epidemic seasons—in the presence and possession of pneumonic organisms, but it rests much with us whether we shall bring about the conditions favourable for their aggressive germination. Infection, as in tuberculosis, as a cause of pneumonia is a possibility; nevertheless when the 'etiological conditions common to members of the same family, or closely associated persons, are duly recognized and accounted for, but small need remains for direct infection in the etiology of the disease.

A. D Blackader.

New Vaso-Dilators.

BRADBURY. "The Bradshaw lecture on some new vaso-dilators."—*British Medical Journal.* November 16, 1895.

In this very interesting address Dr. Bradbury introduces to our notice some new vaso-dilators whose action he has been recently investigating. In the Crosnian lectures for 1893 Professor Leech reviewed and much extended our knowledge of the nitrites and of nitro-glycerine (glycerol trinitrate). These substances possess a powerful, but more or less evanescent, action. Since then attempts have been made by many pharmacologists to determine some new compound whose action would be more prolonged and from which we might obtain a more even and sustained effect. As all the alcoholic nitrates previously examined had proved to be active vaso-dilators, and as nitro-glycerine, the only multi-valent nitrate used, has this action in a marked degree, it seemed not improbable that the drug in question might be found among the nitrate derivatives of the higher-valent alcohols or their allies.

All soluble organic nitrates (of the composition R O N O_2) hitherto examined are vaso-dilators, and their activity, which varies within wide limits, appears to be due to their differing solubilities and liability to decomposition. The erythrol and mannitol nitrates are less soluble than the other compounds and have a correspondingly weaker, but much more prolonged, action.

Careful investigation, by means of perfusion experiments, and blood pressure tracings, indicate that during the period, when the nitrites and nitro-glycerine show their greatest activity, these show little or no action. After the administration of one grain of erythrol tetra-nitrate no very marked effect is noticed till fifty minutes have passed, the tension then falls gradually for about an hour and a half and then as gradually returns. In the pulse tracings shown, the tension had not reached its former level, although more than five hours had elapsed since the administration. Very similar results are noted after the exhibition of mannitol hexa-nitrate in the same dose. Although occasional cases may be met with in which, either from the pathological condition present, or from a not yet explained individual idiosyncrasy, we obtain little or no response to the action of vessel-dilating drugs, and this appears to be occasionally the case with these organic nitrates, nevertheless, he considers that they will prove of distinct therapeutical value.

They have little or no action upon other organs. Certain nervous effects which have occasionally been noted as following the adminis-

tration of nitro-glycerine have so far not been observed after these solid organic nitrates. They appear to have no effect upon the urinary secretions, and they possess no cumulative action, and, so far as Dr. Bradbury is aware, are free from poisonous properties. The chief indications for their use would appear to be the condition in which the heart is labouring under increased work imposed upon it by contracted arteries, whether as the result of advanced age, or of some pathogenic process. The difficulty hitherto has been not so much to reduce arterial tension when desired, as to keep the tension steadily below a certain level. From the nitrites or nitro-glycerine we obtain no effects lasting longer than two hours after their exhibition. To maintain this action and produce continuous low tension, it is necessary that the dose be repeated at least every two hours, and even with this frequent administration there would be considerable variation in the pressure. By these two new drugs tension is not brought so low, but the reduction is of longer duration, and the pressure is less liable to fluctuations.

Dr. Bradbury concludes his paper by referring to the possible value of these drugs in some cases of angina pectoris, chronic Bright's disease, aneurism, Raynaud's disease, and in some forms of dyspnœa. The dose of the solid nitrates may be taken as one grain ; more may be given if it is thought necessary, but usually this amount will suffice. The dose is preferably given in alcoholic solution, which may be taken in water every four or six hours. *A. D. Blackader.*

Pathology.

Cholera in India.

HANKIN. "Observations on cholera."—*Indian Medical Gazette*, March, 1895.

HANKIN. "Annual Report of the Chemical Examiner and Bacteriologist to the Governments of the North-west Provinces, etc., for the year 1894."—Allahabad, 1895.

HAFFKINE. "Anti-choleraic inoculations in India."—*Indian Medical Gazette*, No. 1, January, 1895.

"Inoculation for cholera."—*The Times*, weekly edition, Oct. 4, 1895, page 783.

MACRAE. "Cholera and preventive inoculation in Gaya jail."—*Indian Medical Gazette*, No. 9, September, 1894.

SIMPSON. "Report of the Corporation of Calcutta."—August 16, 1895. See also *British Medical Journal*, Sept. 21, 1895, p. 735.

It is now more than ten years since Robert Koch visited the region in which cholera is notoriously epidemic, whence have spread the terrible epidemics of the disease which have formed an important feature in the medical history of this century. That memorable visit led to the discovery of a spirillum associated with the disease, and the researches which have since been carried out in various parts of the world, and under the most varying conditions, tend to show that this association is so intimate that now-a-days all bacteriologists are willing to acknowledge that the spirillum is the causative agent of the disease. Nevertheless, with strange obtuseness, the Indian medical service as a department of the Government, and indeed as a branch of the British army, has throughout failed to appreciate the value of Koch's discovery, and what is more, has blindly hung on to old and ineffective methods of coping with the disease, in short, has done nothing to gain any practical results from Koch's all-important discovery. Only now, after all these years, thanks to two remarkable men wholly unconnected with it, is that service beginning to realize that there is something to be gained from the bacteriological study of the disease. These two men are Mr. E. H. Hankin, the chemical examiner and bacteriologist to the Government of the North-western

Provinces, and Dr. Haffkine. Both before visiting India had made names for themselves as bacteriologists, the one by his remarkable series of observations upon the albumoses of anthrax and the defensive proteids of the body, the other by his observations upon cholera and other diseases at the Institut Pasteur, where he was demonstrator under Metchnikoff and Roux. Hankin's work had been performed in the pathological laboratory of the University of Cambridge. These observers have worked along different lines in attempting to stem the disease ; both have achieved remarkable results.

Hankin's work has been very largely directed towards a study of the conditions under which the cholera spirillum exists in water. Of late during the progress of epidemics of the disease in France, Germany, Italy and elsewhere, spirilla have been discovered in the water employed for drinking purposes. This was notably the case during the great epidemic at Hamburg, and indeed when in India Koch himself had discovered the microbes in village tanks. In a large number of cases the spirilla isolated have diverged in several particulars from Koch's classical description, and as a consequence there has been grave doubt as to whether they were the pathogenic organisms. It has been left to Hankin to study fully the connection between these spirilla and outbreaks of the disease. This he has done in a large number of places, in Lucknow, Etawah, Unao, Cawnpore, in the Gonda District, in and near Shahgunj, and in Allahabad, and to place his results in as concise a form as possible he has found that in a large nuumber of localities, situated often under very different climatic and other conditions, vibrios, that is to say microbes, resembling those of cholera are extremely rarely to be found, except in places in which cholera has recently existed. During an epidemic, so far as tested they generally show virulence and are capable in pure culture of killing guinea pigs within relatively a very few hours. They give the indol reaction and possess other characters regarded as typical of the cholera microbe. After the cessation of the epidemic the spirilla gained from the water show a greatly diminished virulence for guinea pigs, and in their limited ability to grow on agar-agar they exhibit a diminution of vitality that may perhaps safely be regarded as an indication of diminished virulence. Such degenerated vibrios show great tendency to die out in ordinary cultures, so that it is difficult to keep them alive for any time in the laboratory. The conclusion from these researches would certainly seem to be that these vibrios are nothing more than the microbe of cholera in a degenerated condition. In this way Hankin throws light upon the divergent results of European bacteriologists and on the existence of races of spirilla.

Though there is reason for thinking that the cholera microbe thus degenerates rapidly in well water, there is no similar reason for thinking that conditions may not exist in which it can maintain its virulence, and indeed Hankin presents an account of one or two such cases in which there had been apparently exaltation of virulence. He mentions, for example, a catch-pit at Daragunj, a hole in the sand on the bank of the Ganges about three feet in diameter, containing stagnant water and fed by a small drain running into it from the village. The water of this on his first visit contained over three million microbes per c.c. The cholera germs isolated from it killed guinea pigs in twenty-four hours. A fortnight later he examined the water that was trickling into it from the village (at that period free from cholera). This contained cholera microbes that killed a guinea pig in four hours. For comparison it may be mentioned that Haffkine's most powerful virus requires six hours to kill these animals.

These observations have led Hankin to proceed further, and starting from the basis that cholera is in the main conveyed from individual to individual, by the contamination of water with fæcal matters. to observe whether disinfection of the water supply might not arrest epidemics. This disinfection is all the more important in that whereas in European towns there are at most two or three sources of water in use, in an Indian town there are usually hundreds of sources. In some places, as at Cawnpore, there may be a well in almost every house. He first employed lime. This was certainly successful in destroying the microbe, but as it frequently killed frogs in the well also the results were not regarded as uniformly satisfactory. Permanganate of potash proved to be much more satisfactory. In a majority of cases when a well known to be a source of cholera infection and containing cholera microbes was disinfected with permanganate the cholera ceased at once in the areas supplied by that well. The results, however, were not uniform, indeed I believe that I am correct in stating that Mr. Hankin owed a mild attack of cholera from which he suffered to a premature demonstration of the harmless character of such disinfected water. The use of the permanganate in sufficient quantities to destroy the spirilla has no deleterious effect upon the water, but when this simple method in case after case has arrested the spread of an epidemic among those employing the water, its beneficent working shows that in it Mr. Hankin has devised a remarkable means of prevention of a most dread disease, and so important to the well-being of the Indian peoples do his observations appear to be that he does well to ask for an extended trial of this method of combating cholera and of destroying it at its source.

The account of the above investigations forms, however, but a small portion of the record of Mr. Hankin's great activity. His annual report for the year 1894 is full of other matters of extreme interest. How widespread are the subjects with which he has to deal will be understood when it is stated that the report treats of his investigations into the nature of the hairs obtained from the mud smears on mango trees which caused so much excitement a few months ago, with medico-legal cases of poisoning, with the bacteriology of aërated waters, examination of filters, of mildew on canvas and of microbes in Indian rivers. He shows among other things the inefficiency of "filter-tank" wells. He found, for example, that in one case the water obtained for regimental use from such a filter contained the cholera microbe, while the water passing to it before filtration was free from the germ. Upon inquiry it was found that the sand used for the filters had been taken from an insanitary spot on the banks of the river below the town. He found also that the Macnamara filters in use by certain companies of the East Lancashire regiment appeared to act also as excellent breeding grounds for the microbe and were in fact, highly infected. Failing the use of weak solutions of permanganate, the only safe method of insuring germ-free water would seem to be by boiling it.

Let me now turn to Dr. Haffkine's results. Starting from the hypothesis that the spirillum is the actual cause of cholera, this young Russian observer had been engaged for a considerable period while at the Institut Pasteur in endeavoring to elaborate a method of "vaccination" against cholera. So far as results upon lower animals, such as guinea pigs, could be relied upon, he had shown that it was possible to gain protection against doses of most highly virulent cholera microbes by previous inoculation with attenuated cultures. But means were wanting to test the value of his laboratory experiments. It is true that the guinea pig will succumb to doses of virulent spirilla, but it is also true that the conditions under which this is brought about are highly unsatisfactory. In order to induce what appears to be an intestinal cholera the little animals have to be dosed with alkaline solutions and with opium, treatment which alone will often lead to fatal results. If, as has been now frequently done by enthusiastic bacteriologists, by Hankin, Haffkine, Metchnikoff and others, and by sceptics such as Pettenkofer, pure cultures of what appear to be most virulent microbes are taken by the mouth, in only about 5 per cent. of cases do any results ensue. Haffkine, it is true, further inoculated himself and a large number of his friends with his vaccine, but under the conditions it will be readily understood that the fact that he and

his friends remained in good health when subsequently they ingested countless millions of the spirilla was devoid of any absolute value. It was necessary, therefore, that if the method of vaccination was to be tested, this should be on a large scale, and with the object of obtaining the best field for a search into the value of the method, Haffkine, at his own cost and responsibility, went to India. But once in India his trouble had only begun. A free population, the various influences and currents of opinion intervening, religious feelings and conditions, and the mixture of confidence and distrust on the part of individuals and committees are conditions not entirely favourable for an experimenter having the aims of Dr. Haffkine.

He started with the hope that he might select a village or a small town suffering regularly from a known amount of cholera. By inoculating, before the cholera season, a half or a large portion of the village, he had hoped that a field would be prepared for observing the effects of his operation. But such village did not present itself. It was only after a long period—more than a year—of almost ineffectual work that the right method showed itself. It was not necessary to inoculate half a country, or a city, or even half a village ; in the endemic area each house can comprise within its walls an experimental group, and by inoculating some, and not inoculating other, members of the households who otherwise were under similar conditions of food, water, soil, social customs, etc., reliable statistics could be obtained as to the efficacy of the treatment. The method at first sight seems peculiarly cold-blooded. Upon further consideration, however, there is not a little to be said in its favour. The inoculations were harmless and they were experimental ; those not inoculated were, it may be presumed, those who did not ask to be.

And now as to the results. By recording carefully the statistics of those treated and untreated in such households, in regiments, upon tea plantations and in gaols, and comparing the mortality in supervening cholera epidemics among those inoculated and those untreated, the following are some of the results : In a total of 42,445 inoculations not a single instance of mishap or injury to health resulted. In Calcutta, 1,860 inoculations were performed by the Health Department of the municipality. Cholera occurred in 36 houses in which a certain proportion of the 516 inmates had been inoculated. Among the uninoculated 13·47 per cent. were attacked by cholera and 11·6 per cent. died. Among the inhabitants partially protected by the first inoculation only 2·2 per cent. were attacked and died. Among those who had undergone the complete second inoculation there were no cases and no deaths.

The Calcutta Municipality was encouraged to carry on the experiment by the results obtained in a localized outbreak of cholera around certain tanks. Of the 200 persons living in the infected group of houses 116 submitted to the operation. Among these 116 no further cases occurred; among the 84 not inoculated 10 were attacked and 7 died.

In the Gaya gaol again, both classes of prisoners, inoculated and non-inoculated, appear to have been equally exposed to infection. While Surgeon-Major Macrae's statistics are not easy to grasp at first sight, they show the same results, namely, that after the full period of inoculation by the first and second vaccine no deaths occurred among the inoculated, whereas deaths continued to occur with fair frequency among the non-inoculated. Or, taking the whole statistics from the period of the first vaccination of the prisoners, the mortality among those untreated was twice that among the treated.

Thus after nearly three years' arduous and self-imposed labour, carried out at his own cost, Dr. Haffkine has brought to a successful issue one of the most remarkable experiments ever undertaken by a man of science. He has lived his life before the Indian doctors during all this period, he has completely won their confidence and esteem. The prejudices, apprehensions and unnatural objections to what seemed a dangerous operation he has gently and calmly overcome. The evidence he brings forward is verified by independent medical experts. He came to India a healthy man, he leaves it weak and broken down, but he leaves it, as the *Times* in a most interesting resumé of his works remarks, as one stamped as no ordinary man, and perhaps destined to rank as the Jenner of India.

Controversy may continue with regard to the precise value of inoculation as a prophylactic against cholera, but there can be no controversy as to the disinterestedness of purpose and the high scientific aim which has led Dr. Haffkine to study how to protect, not only our soldiers in India and the Indian people, but also the people of civilized Europe and America from this terrible disease. There can again be no controversy as to the wisdom displayed by the government of the North-west Provinces of India in taking the bold step of establishing a bacteriological laboratory, and appointing to direct it the brightest and most resourceful of young English bacteriologists in the person of Mr. E. H. Hankin. Now that he has accomplished so much for the good of the Indian peoples, it is to be hoped that he will be permitted to devote all his attention to bacteriology pure and simple, apart from medico-legal analyses and the multifarious duties appertaining to the post of chemical examiner.

J. G. Adami.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

OCTOBER, 1895.

THE CANADIAN PRACTITIONER.

Experimental cachexia strumipriva (Thyroidectomica)—Wesley Mills, Montreal, p. 719.

Thyroid feeding in stupor—G. K. Clarke, Medical Superintendent Rockwood Hospital, Kingston, Ont., p. 729.

Urethral carunele—L. M. Sweetnam, Toronto, p. 738.

THE CANADA LANCET.

The primary repair of genital lesions of childbirth, K. N. Fenwick, Kingston, p. 35.

The present status of the electrical treatment of fibroids—A. Lapthorn Smith, p. 37.

THE CANADIAN MEDICAL RECORD.

Notes on three septic cases—F. R. England, Montreal, p. 1.

Sudden death from a rare cause—Robert Marks, Ottawa, p. 6.

L'UNION MÉDICALE DU CANADA.

Fièvre des nouveaux-nés—Isaie Cormier, Montreal, p. 505.

Etude medico-légale—Les aliénés devant la loi—Responsabilité légale—George Villeneuve, Montreal, p. 509.

La digitale—S. Gauthier, St. Ephrem d'Upton.

LA CLINIQUE.

De l'emploi de "l'Huile d'Érigéron Canadense" dans la traitement des hémorrhagies, particulièrement des hémorrhages utérines—De Laval Thierney, Marlboro', Mass.

JOURNAL OF THE AMERICAN PUBLIC HEALTH ASSOCIATION. VOL. I. PART IV.

Notes concerning the nourishment of children in their earliest infancy, exclusive of nursing at the breast—A. Simard and R. Fortier, Quebec, p. 367.

Nomenclature of colours for bacteriologists—E. B. Shuttleworth, Toronto, p. 443.

How is variability in bacteria to be regarded?—J. G. Adami, Montreal, p. 415.

Opening discussion on what new methods can be suggested for the separation of bacteria into groups, and for the identification of groups—J. J. Mackenzie, Toronto, p. 419.

On grouping water bacteria—Wyatt Johnston, Montreal, p. 445.

REPORTS, ETC.

On the sanitary state of the City of Montreal for the year 1894—Louis Laberge, Medical Health Officer.

Experimental Cachexia Strumipriva---Wesley Mills.

At the recent meeting of the Canadian Medical Association at Kingston Dr. Mills gave an interesting demonstration of the results of complete and partial ablation of the thyroid in cats and dogs, and

at the same time recorded the results of other observations made by him of the same nature. His researches entirely confirm those of Horsley and other observers, though apparently he would not lay so much stress as did Horsley (in his article contributed to the *Virchow Festschrift*) upon the relationship between the richness of the food of carnivora in extractives and the rapid appearance of the symptoms of cachexia strumipriva in these animals. From the records of experiments given by him it would certainly appear that cutting off meat diet from young dogs has little or no effect in delaying the manifestations of the morbid state. He points out that while direct experiment has proved that there is heightening of the cortical excitability to electrical stimulation during the first stages of cachexia with later lowering of the same, this has little obvious bearing upon the main nervous symptoms, inasmuch as a young dog upon which he had some weeks previously repeated Goltz's experiment, removing both cortical motor areas, developed, nevertheless, the usual nervous symptoms in the usual way and died upon the sixth day.

Thyroid Feeding in Stupor—G. K. Clarke.

The writer, after pointing out that in many cases, acute disease, such as typhoid fever, modifies mental symptoms, and that striking results are obtained in cases of stupor by some sudden shock or injury, cites several cases that had been experimented upon by feeding with thyroid extract. The cases selected were those with well-marked stupor, where the out-look had become unfavourable, if not hopeless. A decided reaction was looked for, and the dose regulated by the tolerance of each patient.

The first case, a male, aged 20, was admitted January, 1893, in a state of complete stupor, without intelligence, dirty in habits, and requiring as much attention as an infant. In January, 1895, the patient was mentally unchanged. Treatment commenced on January 8th, with 3 grains of raw thyroid, and this dose was gradually increased to 20 grains on the 19th, the effects being free perspiration, muscular twitchings and increasing mental brightness. On February 1st, he was reported to be quite well mentally, as far as could be ascertained, but on February 7th he suddenly relapsed to a condition of complete stupor, from which he has never recovered. A sudden relapse, as in this case, had been several times observed by the writer, to follow the improvement after typhoid.

The second case, a man aged 35, was admitted February, 1894, in a condition of stupor and wretched physical health. In January, 1895, though improved bodily, he was mentally unchanged. Treatment commenced on January 14th and was continued to February 1st, the

maximum dose being 20 grs. three times daily. The patient was discharged cured on March 26th.

The third case, a female, had been insane four months before commencing treatment on January 26th. On March 25th she was discharged apparently cured.

The fourth case, female, aged 34, was one of puerperal mania with stupor. Treatment commenced January 24th, was discontinued February 4th, and on April 10th she was sent home on probation. In August she was reported as being well.

This very interesting series of investigations on thyroid feeding in mental disease is, the author believes, the first on record in America.

Sudden Death from a Rare Cause---Robert Marks.

This case, which was reported and the specimen shown before the Ottawa Clinical Society, came before the coroner of Carlton county. A women, aged 28, eight months pregnant, died suddenly from unknown causes. At the autopsy, on opening the abdomen a large quantity of liquid blood escaped, and a very large clot of blood was found. An eight months fœtus was found in the uterus. At the upper part of the womb there were two ulcerations, larger than a ten cent piece, penetrating through its walls, and extending into the placenta ; several other ulcerations were present, but not penetrating ; the uterus was soft and friable. No report is given of any of the organs except the brain, which was normal.

How is Variability in Bacteria to be Regarded ?---J. G. Adami.

After pointing out how bacteria may be modified according to the media on which they are grown, and their environment, the writer, in order that some definite classification may be arrived at, recommends :

1. That in order to emphasize as much as possible the individuality of any given form isolated, it be studied upon various media so soon as isolated.

2. That to determine the relationships of such a form successive growths should be made upon the ordinary standard media for not less than a year, control and parallel growths of the form to which it appears allied being conducted at the same time and on the same media.

3. That if at the end of the year the difference between the two forms persist, then the form examined must be classed as a sub-species.

4. That otherwise the form is shown to be definitely a variety.

5. That all who describe new species should be urged to afford a second description twelve months later in the same journal as that in which their first communication appeared, this second description stating accurately how far the forms have become modified by continued growth on ordinary standard media.

On Grouping Water Bacteria---Wyatt Johnston.

The writer sums up the present position with regard to grouping the species as follows: (1) The descriptions at present recorded in connection with species of water bacteria do not readily lend themselves for purposes of grouping. They lay stress on points of difference to the neglect of points of resemblance. (2) Too much importance is attached to descriptions of conditions which cannot be readily utilized by others, and too little attention paid to tests by which definite information is obtained. (3) There is a great want of uniformity as to the essential points to be recorded in describing species (4) For grouping purposes a single, strongly-marked characteristic peculiar to a few species is of more value than a number of minor details.

Sanitary State of Montreal for 1894---Louis Laberge.

The Annual Report of the Medical Health Officer for 1894, which has just been published, contains many facts of great interest. The mortality for the year reached 27·27 per 1,000 of the population, an increase of 2·31 per 1,000 over the rate for the previous year and 2·26 over the mean rate for the preceding five years. There were 15 deaths less from constitutional diseases, but all other classes gave a higher mortality, local diseases giving an increase of 378 and zymotic diseases an increase of 377. From the latter there were in all 1,847 deaths. Scarlatina contributed 497 deaths, or more than any of the other infectious diseases, the mortality being the highest recorded since the first annual report was published. The largest number of victims were carried off during the first half of the year, chiefly in the month of March. The type that prevailed was a most malignant one, being almost always, even during the prodromal stages, complicated with rapidly developing aphthous or gangrenous angina. Diphtheria showed an increase of 37, and croup an increase of 33 deaths over the previous year. Typhoid fever, on the other hand, was the cause of only 42 deaths, the lowest number for several years past and 8 less than last year. This increase in mortality is not due to an unsanitary condition of the city but is explained by the increase of deaths due to diseases beyond the control of public hygiene, to a fortuitous epidemic of scarlatina, and to the enforcing with unusual vigour the collection of death certificates from superintendents of cemeteries and from persons removing bodies beyond the limits of the municipality.

Other subjects treated of in the report are the Civic Hospital; the appointment of a bacteriologist to the Health Department; the disinfection of houses infected by tuberculosis; the inspection of milk and dairies; public water-closets (the hope is expressed that in the course of next year a system of public water-closets cleanly and neatly kept will be established); the abolition of privy pits; garbage destruction; and the morgue. *Kenneth Cameron.*

Reviews and Notices of Books.

Hare's Text-Book of Practical Therapeutics. A Text-Book of Practical Therapeutics; with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M.D, Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. With special chapters by Drs. G. E. de Schweinitz, Edward Martin and Barton C. Hirst. New (fifth) edition, thoroughly revised. 8vo., pp. 740. Philadelphia: Lea Brothers & Co. 1895.

The fifth edition of this very valuable text-book in as many years indicates in a convincing manner the high esteem in which it is held by the profession in America. The editor has a high reputation, not only as a teacher, but also as an experimental pharmacologist. We find, therefore, as we might expect, that the physiological action of all the drugs as far as it is known is very clearly stated. Above all things, however, the work is a practical one, and the busy practitioner will find that all information respecting practical therapeutics is here made easy of acquisition. The contents are divided under four headings. I. General Therapeutical Considerations, under which Modes of Administration, Dosage, Idiosyncrasy, &c., are discussed. II. Drugs, in which all the official, and many unofficial, remedies are described, and the preparations of both the United States and British Pharmacopœia are given. Many magistral formulæ, illustrating special applications of the drugs, are interspersed wherever they are considered useful. III. In this division Remedial Measures, other than Drugs, and Special Foods for the Sick, are considered. We note excellent chapters on Antisepsis, Use of Heat and Cold, Mineral Springs, Climate, Transfusion, &c. In Chapter IV. the various Diseases are taken alphabetically, and their treatment concisely yet thoroughly discussed. Carefully prepared indexes by which reference to any special information desired is made easy, complete this very practical and reliable volume.

We have already recommended the volume to our students, and we have pleasure in expressing our confidence that it will prove of much service to practitioners generally. A. D. B.

Practical Dietetics, with Special Reference to Diet in Disease. By W. Gilman Thompson, M.D., Professor of Materia Medica, Therapeutics and Clinical Medicine in the University of the City of New York. 8vo, pp. 802. New York: D. Appleton & Co. 1895.

This very valuable work has been written with the intention of furnishing to the practitioner a text-book containing instructions as to the

appropriate diet in diseases which are influenced by right feeding. This the author has exhaustively accomplished. Since the appearance of Pavy's work on "Food and Dietetics" no work of importance on this subject has appeared, and we, therefore, hail with pleasure this new volume on such an important subject, coming, as it does, from one so well fitted by his previous study as a physiologist, and by his present position, for the task which he has undertaken.

After an introductory chapter on the elementary composition and classification of foods, their force production and their economic value, nutrition is considered and the various substances which we take into our bodies as food are classified. In Part I. foods and food preparations are discussed, and all the newer ideas in regard to the methods of sterilization and preservation of milk are considered at length. Part II. is devoted to stimulants, beverages and condiments. In Part III. the preparation of food and the quantity required by the normal body are considered. This is followed in Part IV. by a discussion of the foods required under special conditions. Part V. treats of digestion and the conditions which affect it. In Part VI. the writer speaks of diseases caused by dietetic errors, and in Part VII. of the various foods for the sick. Part VIII., "Diet in Disease" is a very exhaustive article, occupying a fourth of the volume; in this pathology and symptomatology are largely entered into, and the relation of diet to disease very fully discussed from the standpoint of both the physiologist and the physician. Diseases of the alimentary canal claim a large space in this article, and we notice that all the more important tests for gastric secretion are detailed.

The volume closes with a list of rations and dietaries, and with an appendix giving a number of recipes taken from standard authors for the preparation of food for invalids.

Altogether we can recommend this book to our readers as a particularly valuable one, supplying a real need and containing all our present knowledge on this important but too much neglected subject. A. D. B.

A Treatise on Pharmacy, for Students and Pharmacists. By Chas. Caspari, Jr., Ph.G. With 288 illustrations. Philadelphia: Lea Bros. & Co. 1895.

We have had much pleasure in examining this volume, in which we think the writer has fully justified his work, and has supplied students and pharmacists with an extremely useful and trustworthy guide, one which will prove of much assistance in the study and use of the United States Pharmacopœia. The subjects treated of in this book are grouped under three divisions. In Part I. the various details and operations connected with general pharmacy are fully described. Part II. treats of practical pharmacy, and embraces a study of the official galenical preparations, together with that of the technique demanded from the dispenser. Part III. is devoted to pharmaceutical chemistry, and to all

those who have to do with the United States Pharmacopœia this part of the work must prove extremely valuable.

The general appearance of the work justifies the author's statement that the publishers have spared neither expense nor labour in the typography, engravings and general outfit of the book. A. D. B.

Medical Electricity; a Practical Hand-book for Students and Practitioners. By H. Lewis Jones, M.A., M.D. Second edition, with illustrations. London: H. K. Lewis. 1895.

This work, which is the second edition of a book published under the same title, and written conjointly by Dr. W. E. Stevenson and the present author, is a succinct and clear statement of the various facts and details concerning electricity as a therapeutic measure, with which it is necessary that the physician should be acquainted, to enable him to make use of this valuable ally in therapeutics. We note, among others, chapters on batteries and apparatus, physiology, diagnosis, and general therapeutics. These are followed by chapters on the application of electricity to special diseases of the nervous system, and to other conditions requiring electricity. We have carefully read over this work and can recommend it to those who desire to become familiar with this means of therapeusis, but who rather shrink from the task of mastering one of the larger treatises on the subject. A. D. B.

Hygiene and Public Health. By Louis Parkes. M.D. Fourth Edition. 1895. Pp. 531. London: H. K. Lewis.

The popularity of this book has caused the editions to be issued at short intervals, and the present one has been brought up to date. We notice that the subject of biological water analysis is rather summarily dealt with in two pages (which is, however, a good deal of space for an English text-book to devote to this topic, a page and a half being about the average). Water closets come off better with sixteen pages, and the whole chapter on the disposal of refuse is particularly good. Nearly one-fourth of the book is taken up with the consideration of the cause and prevention of contagious diseases.

The style throughout is clear and concise, and the arrangement of the subject matter convenient. W. G. J.

Transactions of the Association of American Physicians. Tenth Session. Held at Washington, D.C., May 30th and 31st. 1895. Volume X. J. Minis Hays, M.D., Recorder. Philadelphia.

The following papers are among the contents:

Leucomain Poisoning, by B. K. Rachford, M.D., Clinician to the Children's Clinic, Medical College of Ohio, Cincinnati, Ohio; Renal Affections following Influenza, by G. Baumgarten, M.D., of St. Louis; Etiology of Idiopathic Hypertrophy of the Heart, by James T. Whittaker, M.D., of

Cincinnati; A Case of Madura Foot Disease. (Mycetoma Pedis, Ochroid Variety), by J. George Adami, A.M., M.D. M.R.C.S. Eng., Late Fellow of Jesus College, Cambridge. Professor of Pathology in the McGill University, Montreal; and R. C. Kirkpatrick, M.D., Assistant Surgeon to the Montreal General Hospital; Goitre in Michigan, by George Dock, of Ann Arbor, Michigan; Hyperthermy in a Man up to 148° F. (64.4° C), by A. Jacobi, M.D., of New York; A More Comfortable Way of Using Cold in Fevers, by Francis H. Williams, M.D., of Boston; A Contribution to the Clinical Study of Intrathoracic Tumours, by William Pepper, M.D., LL.D., and Alfred Stengel, M.D., of Philadelphia; Two Cases of Fat-necrosis, by Charles G. Stockton, M.D., and Herbert U. Williams, M.D., of Buffalo, New York; Carosso's Treatment of Pulmonary Tuberculosis, by Harold C. Ernst, M.D., of Boston, Mass.; The Area of the Murmur of Mitral Stenosis, by J. P. Crozer Griffith, M.D., of Philadelphia; The Preparation of the Antitoxin of Diphtheria, by Harold C. Ernst, M.D., of Boston, Mass.; The Treatment of Diphtheria, by Antitoxin, by William H. Welch, M.D., of Baltimore; Observations on the Marrow of the Bone and the Spleen in a Case of Leukæmia, by John Guitéras, M.D., of Philadelphia; The Cause of the Disparity found both in Health and Disease on Physical Examination of the Upper-Portion of the Chest; by Charles Cary, M.D., of Buffalo, New York.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, October 18th, 1895.

A. D. Blackader, M.D., President, in the Chair.

Drs. W. F. Hamilton, W. H. Jamieson, G. H. Mathewson, E. J. Semple, J. W. Scane, A. T. Bazin, J. D. Cameron and G. H. Manchester were elected ordinary members.

Successful Case of Trephining for Meningeal Hæmorrhage—Ligature of the Carotid.

Dr. F. J. Shepherd exhibited a patient who had been successfully trephined for meningeal hæmorrhage. The patient was a man aged 28 years, who whilst coasting down a hill on a bicycle on August 4th lost control of his wheel and was pitched headlong against a telegraph post. He was brought to the Montreal General Hospital in an unconscious condition soon after the accident. On entrance he vomited freely and towards evening regained consciousness and was quite bright. After a restless night he next morning became stupid and paresis of right side developed. Dr. Shepherd saw him then for the first time, and as the stupor was increasing in that it was more difficult to arouse him, and the paralysis of the right side was becoming more pronounced, he came to the conclusion that meningeal hæmorrhage was going on, and determined, therefore, on immediate operation. On examining the head a wound down to the bone was seen extending from the anterior superior border of the left parietal bone downwards and forwards for some three inches. A fissured fracture could be seen at the bottom of the wound running down in the direction of the squamous portion of the temporal bone; a slight depression was also seen at the upper end of the wound. At this latter point the skull was trephined, and on removing the disc of bone a thin clot was reached which spread over the vertex and side of the brain. This clot was much larger towards the temporal bone, so another trephine opening was made about the middle of the wound, and on removing the bone a larger clot was met with, and the middle meningeal artery was seen quite empty lying on the dura-mater, the hæmorrhage evidently coming from deep down. An incision was made down to the zygoma and the skull cleared of soft tissues, and from the last trephine opening downwards a piece of bone, two inches wide by three

inches long, was chiselled out. Still the hæmorrhage appeared to come freely from below, so the brain and its membranes were held aside with broad retractors and, the blood clot being removed, the fracture was seen to run through the foramen spinosum and then across the body of the sphenoid. The artery was evidently torn in the foramen and as the man had lost and was losing a considerable amount of blood, Dr. Shepherd decided to tie the left common carotid artery, which he did very rapidly. The free hæmorrhage immediately stopped, though there was still venous oozing. All the blood clot was washed out, and the space to the base of the skull packed with iodoform gauze. The gauze was brought out of the lower end of the wound ; all the rest of the wound was sutured.

On leaving the table the patient was in a very bad condition. Pulse 180 to 190, respiration 30 to 40 and shallow. So a large enema of hot saline solution was administered, which had an immediate effect of lowering the pulse to 140. The patient regained consciousness by the evening and could converse intelligently. Next day his condition was good ; pulse 120, respiration 20 ; paresis of right side was present ; patient could articulata perfectly well. There was much oozing of bloody serum through the dressings. On Aug. 7th he was very restless, and there was so much oozing that the wound was examined and the gauze packing carefully removed. No sooner did the last piece come away than there was a tremendous gush of what looked like arterial blood, which jetted out in a very lively manner, so the gauze was immediately replaced. From this time forwards the patient went on well, with the exception of two days, when there was aphasia ; the gauze packing was removed on the tenth day (August 17th) without hæmorrhage resulting. Throughout the case there was no sepsis. He was waiking about by September 1st and there was no trace of hæmorrhage, nor was speech at all affected. When he was discharged some days later the wound had healed,with the exception of a small spot at the upper and lower ends.

When shown to the meeting the patient was perfectly well, the wound was soundly healed, and his intelligence and speech were perfect. The wound made for the ligature of the carotid united by first intention.

Dr. Wesley Mills congratulated Dr. Shepherd on the success of the bold step he had taken. He had found that in experimental operations on the brain hæmorrhage very often spoiled the experiment. He could, therefore, appreciate Dr. Shepherd's remarkable experience.

Whitman's Plates in Flat Foot.

Dr. C. WILSON showed two cases, with the appliances in use. (See page 414.)

Dr. SHEPHERD had seen Dr. Whitman use his appliances in New York and had been greatly struck with them, but as considerable technical skill is required in the manufacture of the plates he had never made use of them here. He had been satisfied to raise the inner side of the foot and thus make the patient walk on the outside. He had also performed the operation suggested by Trendelenburg of dividing the tibia above the ankle so as to produce a condition of bow-legs. The operation was severe and the results not nearly so satisfactory as those obtained from the use of many technical contrivances.

Progressive Muscular Dystrophy.

Dr. JAS. STEWART showed two cases of this disease. In one, a lad 15 years of age, the dystrophy was of the facio-scapulo-humeral type, the affected muscles being wasted to a marked degree. In the other the affection was more general, but the wasting of special muscles less marked. The full reports will be published later.

Gall-Stone Surgery.

Dr. G. E. ARMSTRONG read a paper on this subject. (See page 405.)

Dr. SHEPHERD said that it was a great advance to attack the obstructive point, but that it was not always easy to do so. Some operators (McBurney and others) had opened the bowel and endeavoured to reach the obstruction through the duct from below. He thought that to perform cholecystenterostomy with Murphy's button without first trying to remove the stones was a mistake. He referred to a case upon which he had operated eighteen months ago. The patient, a woman, was deeply jaundiced and the subject of xanthoma tuberosum. It was thought that there was a close connection between the jaundice and the eruption. He was unable to recognize the normal anatomical relations of the gall-bladder, but he cut down where he knew the gall-bladder should be, and opened several pockets containing a number of large stones; there were altogether seven or eight large stones, each in a separate pocket. As the gall-bladder could not be brought to the surface, a tube was inserted and well packed round with iodoform gauze. For a long time the flow of bile was profuse, but without any evil results. The stools gradually became coloured, the urine normal, and the jaundice and xanthoma disappeared. How the common duct had been restored he could not explain. He had presented the case at the recent meeting of the American Dermatological Society held here, as a case of xanthoma

cured by operation. At the time of the operation he could not tell exactly from where the stones came, but thought probably from the cystic, hepatic or common ducts. There was so much inflammatory tissue that it looked as if the common ducts were obliterated. All the stones that could be felt were removed.

Dr. James Bell congratulated Dr. Armstrong on the success of his operation, and said he thought the profession did not realize how satisfactory the surgical treatment of gall-stones was. This was a new department of surgery in which there had been rapid advances from the earlier methods, such as needling and crushing, which he had always felt to be crude and unscientific. He believed removal of gall-stones and suture of the duct, as recommended by Dr. Armstrong, was the proper procedure, but there were many cases in which this was difficult or perhaps impossible. At about this same date last year he had reported a case very similar to Dr. Shepherd's, in which the jaundice had been kept up by a chain of enlarged lymphatic glands in the fissure of the liver and there had been nothing in the duct itself. He had put in a glass drain, packed it round with gauze, and had had a very satisfactory result. Dr. Bell thought that a cardinal point in the treatment was that bile itself was practically innocuous and that a slight escape, unless inflammatory and septic elements were also present, was not a serious complication, The operation of cholecyst-enterostomy was but a step in the evolution of the treatment, and would be abandoned for that of removal of the stone and suture of the duct; where the duct could not be sutured, drainage through the gall-bladder temporarily, or drainage through the abdominal cavity protected by gauze, was the proper course to pursue.

Myoma Uteri.

Dr. T. Johnson-Alloway exhibited a myomatous uterus composed almost entirely of nodular masses of fibroid tissue springing from the central cavity in all directions. Most of these nodules were sub-peritoneal and of extreme density. The mass weighed about twelve pounds. The patient was 60 years of age, weighed 200 pounds, and had suffered from menorrhagia. The Zweifel-Chrobak method of extirpation had been adopted. The patient made a good recovery and left the hospital about the fourth week after operation.

Double Ovarian Dermoids.

Dr T. Johnson-Alloway showed two dermoid cysts of the ovary, each about the size of a large cocoanut. They were removed from a patient aged 45, who had had eight children. The right tumour was incarcerated in the well of the pelvis and was adherent to all parts in its vicinity. It was delivered intact without rupture. The left tumour

was attached to a long pedicle and floated high up in the abdominal cavity. The cavity was irrigated, the wound closed without drainage, and the patient left the hospital well on the thirtieth day after operation.

Dr. ADAMI pointed out that while the condition was rare this was the third case of double dermoid cysts of the ovary presented before the Society during the last two sessions.

Upon Bifurcation of the Ribs and Costal Cartilages.

Dr. J. G. ADAMI stated that while bifurcation of the ribs was an abnormality apparently of no very great rarity, and while most museums contain one or more examples of the condition, it was remarkable that most of the larger English text-books of anatomy, which devote attention to the abnormalities of various organs, pass over the subject in complete silence.[1] He exhibited three specimens illustrative of the condition. The first of these was a preparation presented to the museum by Dr. Shepherd, consisting of the 2nd to the 6th ribs of the right side, with their cartilages and part of the sternum. The specimen showed that the outer end of the 4th rib was much wider than any of the others, the breadth of the 3rd being 12 mm. at its articulation, of the 5th 11 mm., while that of the 4th was 18 mm. The cartilage of the rib consisted of two processes starting from the widened end of the rib and fusing into one before joining the sternum, thus leaving an oval space 10 mm. long by 6 mm. in a vertical direction.

The next two specimens had been obtained in the post-mortem room at the Royal Victoria Hospital during the last twelve months. Of these, one was from the body of an aged *habitant*, who had died of phlegmonous erysipelas. The specimen consisted of the end of the 3rd and 4th ribs of the left side, with their cartilages and a portion of the sternum. In this specimen the condition was a little more pronounced, the anterior end of the rib was relatively enormously broadened, being 29 mm. across, as compared with 11 mm., the breadth of the articular end of the 3rd rib. The rib presented a short upper process 8 mm. broad at its articulation and scarcely projecting from the main mass of bone, and a lower process 9 mm. broad and 10 mm. long. From each of these processes there passed a separate cartilage, and these, as in the last case, fused together before the attachment to the sternum, leaving a space 17 mm. in depth by 20 mm. in a horizontal direction.

The third specimen showed still further exaggeration of the condition. This was taken from the body of an Irishman 78 years of age,

[1] Of the German text-books both Henle and the earlier Meckel devote a few lines to the condition. Of the English, Morris alone has a passing reference to it.

who had died of cardiac disease. The specimen consisted also of the 4th and 5th ribs, but in this case of the right side.

In this patient there had been a particularly wide space noted between the 5th and 6th ribs on the left side, and on the right side the bifurcation of the rib was very noticeable upon removing the pectoral muscles. Here the upper process was 20 mm. long and continued roughly the general course of the rib, while the lower process, 25 mm. long, was given off from the main body at an angle of about 30°. Careful counting of the ribs in this case showed that only eleven pairs were present, the last of the series having all the characters of the ordinary floating twelfth rib. Unfortunately the exigencies of time prevented in this case the removal of more than the outer portion of the ribs, and the vertebræ were not carefully examined The post-mortem notes contained an entry to the effect that eleven pairs of ribs were present in the second case also. With regard to this he could not speak so positively, but he believed the statement to be correct. If so, these cases presented examples of a condition not hitherto recorded. Additions to the series of ribs both above in the cervical region and below in the lumbar region were not infrequent. There was one case at least on record of almost complete absence of the 1st rib and several instances of complete absence of the 12th; but diminution in number by fusion of mid-dorsal segments and their ribs was a condition of which he could find no mention. At the same time, when the variation in the number of lumbar, sacral and even cervical vertebræ was taken into account, there was undoubtedly an inherent probability that such fusion or dropping out of a somite of the body could occur in the mid-dorsal region. The fullest description that he had come across of cases of bifurcation of the ribs and their cartilages was given by Professor Struthers in the 9th volume of the *Journal of Anatomy and Physiology*. This observer, in describing a collection of specimens exhibiting variations of the vertebræ and ribs in man which he had accumulated during many years, gives notes upon five cases, two of bifurcation, two resembling the first case mentioned of ribs broad at the sternal end with bifurcated cartilage, and one in which the cartilage alone was bifurcated. It was interesting to notice that in three of these cases the variety was ascertained to be of the 4th rib—in one it was probably of the 4th, in the other two probable of the 4th or 5th. Evidently, therefore, taking the cases here described also into consideration, there was a special tendency for this variation to affect either the 4th or the 5th dorsal segment. In one of his cases Struthers stated, and in a second implied, that the number of ribs was normal.

That the ribs should divide at their outer extremity was but in keeping with the general law of variation that re-duplication of parts shows itself most often in the distal portion of an organ, and agreeable to this same law it might be stated that bifurcation of the costal cartilages is more frequent than the well marked bifurcation of the ribs themselves. As Professor Struthers pointed out, the condition has a clinical interest, as it might well give rise to a mistake in indicating the position of a chest symptom or of a fracture.

Dr. F. J. SHEPHERD thought that the suppression of the ribs was the interesting point in these cases. He was not aware that when this condition occurred only eleven ribs were present, and he should like to know if there was a deficiency in the number of vertebræ also. He had four or five specimens at the college, but in none of them had the ribs or vertebræ been counted.

Symphysiotomy.

Dr. KENNETH CAMERON reported a case. (See page 427.)

Dr. LOCKHART referred to the unhygienic surroundings in the house where the operation was performed. He had often wondered why the operation was not performed more frequently, as with care perfect asepsis could be easily obtained. He had seen the patient a few weeks ago in a neighbour's house, and she was doing well, having no difficulty in locomotion.

Dr. T. JOHNSON-ALLOWAY, while in Germany this summer, had had a conversation with Professor Zweifel, of Leipzig, who had seen sixteen cases, several of which had been operated upon by himself. Zweifel thought there was a good future for the operation. His methods differed from those ordinarily carried out in the following points: After dividing the symphysis he did not use the forceps, but left it to nature to deliver the child; he used silver sutures in some cases and silkworm gut in others; and he used a broad leather strap pulled tight around the pelvis and adjusted it, occasionally tightening or loosening according to circumstances. He thought, moreover, that there would undoubtedly be cases of halt, as referred to by Dr. Cameron, from not obtaining good union in all cases, and that this was sometimes a serious matter.

A Case of Pyæmia.

Dr. W. F. HAMILTON read the clinical history, Dr. C. F. MARTIN the pathological report. (See page 421.)

Dr. ADAMI thought that the main interest in the case centered in the heart. There was ulcerative endocarditis affecting not only the left side of the heart, but the tricuspid valve also (a condition distinctly rare). That the lungs were perfectly free from disease was noticeable

One would certainly expect under ordinary conditions to find evidence of embolism, or indeed of multiple abscess development, when the tricuspid valves were so far involved. Could there be any comparison established between the pyæmic condition and tuberculosis? It was well known that heart disease leading to congestion of the lungs rarely was associated with tuberculosis of the lungs. Could the same vicious condition of the blood hinder abscess formation?

Another interesting point was the remarkable condition of the heart muscle. The suggestions offered in the paper on the cause of the presystolic murmur were very valuable. The older physicians regarded the presystolic murmur as an absolute diagnostic sign of stenosis of the mitral valve, but the work of the last few years has thrown doubt upon this view. There may be a presystolic murmur heard just before the ventricular systole in several conditions, such as adherent pericardium, aortic disease, and, as he had shown to the Society, when there was actual enlargement of the mitral orifice.

Dr. Wesley Mills thought it unfortunate the case had come up so late in the evening, as the heart problems were worthy of discussion. He had noted that septicæmia in the dog was a very rapidly fatal disease; that sometimes post-mortem the only lesion found was a small wound with a small abscess with absence of pus collections throughout the body.

Stated Meeting, November 1st, 1895.

A. D. Blackader, M.D., President, in the Chair.

The following were elected ordinary members: Drs. E. P. Benoit, A. N. DeMartigny, C. G. L. Wolf and A. Johnston.

Dr. D. P. Anderson was elected a temporary member.

Temporo-Sphenoidal Abscess following Middle-Ear Disease.

Dr. James Bell presented the patient and gave the following history of the case:

The patient, a young man aged 28, had first suffered from suppurative middle-ear disease with perforation of the tympanic membrane, six years ago in the lumber woods. With the exception of a discharge from the ear he had enjoyed good health until the 1st of July last, when he began to suffer from pain and tenderness about the mastoid. There was also œdema over the mastoid, severe headache, and persistent slight elevation of temperature. About the end of August he was sent down to Dr. Buller, who trephined the mastoid on the first day of September, but found no pus. The symptoms were unrelieved, the temperature remained high, there was intense headache, tonic spasm

of the muscles of the back of the neck, and slight delirium. Five days later inequality of the movements of the lower portion of the face was noted. There was slight paresis of the lower left face. On the 8th of September I decided to operate next day. There was then, in addition to the symptoms already given, a low pulse (45 to 55), but no localizing symptom and no optic neuritis. I therefore decided to expose the brain by the removal of an osteoplastic flap, which would give access to both middle and posterior fossæ of the skull. Next morning, however, there was distinct paralysis of certain groups of muscles of the left arm, especially the extensors of the wrist. As it was then quite clear that the lesion was an ascending one involving the motor area, and from the history and symptoms almost certainly a subdural abscess, I simply exposed the skull by extending the original incision in the soft parts, and made a half inch trephine opening at a point one inch above the posterior root of the zygoma, and in a line with the posterior osseous wall of the meatus. In marking the point for the trephine pin with a drill, although prepared for a thin skull, and exercising the utmost caution, the drill went through the skull and wounded the posterior branch of the middle meningeal artery, which bled very freely. When the button of bone was removed with the trephine I cut away further forwards with rongeur forceps, attempting to expose the artery in order to ligate it. I was unsuccessful and was finally obliged to clamp it with the bone in a pair of Pean forceps, which were left *in situ* for several days. The dura mater bulged but did not pulsate, and on incising it a couple of drachms of fœtid pus escaped from above, and on pressing up the base of the brain about half an ounce more escaped from below with shreds of sloughy tissue. The brain surface was covered with lymph, and neither sulci nor convolutions could be identified. The wound in the mastoid antrum was made to communicate with the base of the skull, and the lower border of the trephine opening was cut away with rongeur forceps down to the level of the base of the middle fossa. A drainage tube was inserted along the base of the skull and brought out through the wound. Chloroform was the anæsthetic used and the operation was well borne. After the operation the temperature fell to the normal, the pulse rose to 80–90, and by next day the paralysis was noticeably less; in forty-eight hours it was almost gone and in another forty-eight hours it was completely gone. All his symptoms improved, and he seemed to be on the way to recovery. On the fifth day after operation he became alternately drowsy and irritable. Later, he became sullen and morose and difficult to manage, complained of severe frontal headache, tore off his dressings, insisted on getting out

of bed, etc.; optic neuritis began to develop, and the pulse became slow and at times irregular. On the 30th of September (three weeks after the first opening of the cranial cavity) the wound was reopened. Through the trephine opening a livid fluctuating mass protruded, which did not pulsate. I opened it and evacuated a couple of drachms of pus. After using an exploring needle I opened higher up, and evacuated about an ounce of pus. Passing my finger into the cavity I found it to contain a considerable mass of sloughy tissue. It was carefully washed out with saline solution, and a glass drain inserted. The cavity was in the temporo-sphenoidal lobe, which was now a mere abscess wall. Chloroform was given at first in this operation but was abandoned for ether before the operation began, as it was not well taken. From the date of this operation there has not been a bad symptom. The patient speedily recovered, until he is now quite well, and his optic neuritis has almost disappeared.

Dr. G. E. Armstrong congratulated Dr. Bell on the success of his case. This was a new field in surgery that had recently been opened up, and enabled us to treat cases which in the past had too often proved fatal No class of brain surgery was more promising than the treatment of abscess from fracture of the base of the skull, or from middle-ear disease, if the pus could be got at and cleaned away. Where there was headache and other symptoms of meningeal irritation, he suggested that before an osteoplastic flap was made, in the absence of localizing symptoms, when the tympanum and antrum were thoroughly cleaned, a strong light should be thrown into the attic. Probably a few drops of pus or a few granulations might give a lead that could be followed with a fine probe, and thus the abscess could be located in the temporo-sphenoidal lobe or often in the cerebellum. In this way the exact position might be more easily detected. He asked Dr. Bell if there was anything in the sigmoid sinus. These cases brought up another question which had been raised by Mr. Victor Horsley as to how soon cases of middle ear disease should be interfered with by trephining the mastoid, There had been many cases of middle-ear disease in which suddenly acute septic, cerebral, or pulmonary troubles ending fatally had occurred. Many of the insurance companies would not accept a person with chronic discharge from the ear. Mr. Maeewen answered the question by suggesting the limit of one year, at the end of which the mastoid antrum should be trephined, the tympanum thoroughly cleaned out, and all allowed to heal. The operation was without danger and could be easily performed. The great objection raised was that there might be loss of hearing. While in some cases here was no change, and others were made worse, there were many in which the hearing was distinctly improved.

Dr. Bell, in reply, said that what was suggested by Dr. Armstrong had been done by Dr. Buller before the patient came under his care. From the swelling he had thought at first that the sigmoid sinus was infected. The history showed that the progress of the disease was anteriorly. On the 1st of September the antrum was cleaned out, but the symptoms were unrelieved, and five days later the first motor symptom appeared in the form of a slight paresis of the lower left face.

Experimental Removal of Part of the Thyroid Gland.

Dr. Wesley Mills exhibited a small dog from which he had removed one-half of the thyroid gland more than two months previously. It was one of three on which he had operated in order to illustrate his paper on Experimental Cachexia Thyroidectomica, read before the Canadian Medical Association in August. The other two dogs, as well as two cats from which the entire gland had been removed, died a few days afterwards with characteristic acute symptoms. His object was to show that a dog like this one could be well and lively with only half a gland, the entire removal of which caused such pronounced symptoms and speedy death in the carnivora.

This dog had developed several of the characteristic symptoms just after operation, but had gradually recovered from them and for many weeks had been as well as ever. Dr. Mills proposed to remove the rest of the gland before the next meeting and if possible to exhibit the dog again.

Dr. James Stewart suggested to Dr. Mills that he remove the thyroid gland and feed the animal either before or after on thyroids and see if it was possible to prevent the symptoms from developing. There was no doubt that feeding thyroid glands was a valuable form of treatment in certain functional diseases, and the question of how they acted was an important one.

Dr. Mills, in answer to Dr. Stewart, said that this point had been fully covered and had not been successful. Implantation of thyroids had been tried with more success.

Syphilitic Gummata in the Heart and Liver.

Dr. F. G. Finley read the clinical report of the case, which will be published in full later.

Dr. Wyatt Johnston exhibited the specimens and described the pathological condition as follows:

The heart was found much enlarged, with dilatation and hypertrophy of both ventricles. The aortic valves did not hold water; they showed much thickening, both at their edges and bases, with

aneurismal dilatation of sinuses of Valsava. The coronary cusps were fused so as to form a single abnormally long segment, in the centre of which was a perforation 2 mm. in diameter with rounded thickened edges.

Close to this cusp and invading to some extent the valve and adjacent part of aorta was a firm sulphur-yellow mass over half an inch in diameter. Microscopically, this showed coagulation necrosis, with fatty change in central portion; the periphery was free from any appearance of tubercles, but presented a zone of granulation with formation of fibrous tissue. The aorta showed moderate atheroma. There was congestion and slight brown induration of lungs. The liver showed numerous similar firm yellowish nodules, from the size of a pea to that of a cherry, both on its surface and throughout its tissue. There was much fibroid change about these, but not as much puckering and contraction as is usually found in gummata. The liver substance presented a marked nutmeg appearance with distention of capillaries and atrophy of the cells round the centre of the lobule. The microscopic appearances of the gummata were similar to those in the heart. There were no tubercles seen, and no tubercle bacilli found. A single gummatous mass about the size of a cherry was found in the left testicle between the body and epididymus The kidneys showed the presence of a moderate interstitial nephritis.

Dr. James Bell had a patient under his care whom he believed to be suffering from cardiac syphilis. Three years previously he had come to him with symptoms of syphilis. After treating him for more than two years Dr. Bell had lost sight of him until a month ago, when he returned, stating that he had been rejected for life insurance on account of heart disease. On examination, loud mitral systolic and double aortic murmurs were heard, and as there was no history of heart disease or rheumatism the possibility of syphilis was suggested. He was put upon anti-syphilitic treatment with apparent benefit, although too short a period of time had elapsed to justify any conclusions.

Distoma of the Liver.

Dr. Wyatt Johnson showed some parasitic distomata found post-mortem in the liver of a Chinaman, who had been 10 years in Canada, and who had died of chronic phthisis. The parasites were from 17 to 22 mm. long and 2·5 to 3·5 mm. wide. Their ova were ·028 mm. long and ·017 wide. It was evident that this form was closely related to a group of distoma species described as occurring in China and Japan. He had not as yet been able to decide their identity, though from the imperfect descriptions available, the *D. sinense*, described by

Cobbold, appeared to be the form most resembling it. He had removed 140 of the parasites from the gall-bladder and bile ducts. A slight dilatation of the bile ducts, without any apparent change in their mucosa, was the only evidence of any disturbance caused by them.

Dr. ADAMI asked Dr. Johnston if he was perfectly certain what form of distoma he had. He had understood that the dimensions did not quite correspond to any of those described by Cobbold and other more recent writers, and he thought that although Dr. Johnston had spoken so cautiously this might very well be a new species.

Vesical Calculi with Specially Interesting Features.

Dr. JAMES BELL presented specimens of vesical calculi from two old men who had been operated upon eight days previously. He stated that in both cases the calculi possessed features of unusual interest. Both patients were old men in whom stone first appeared after prostatic trouble had existed for some years.

The first patient was a native of France, 70 years of age, who had begun to suffer from prostatic troubles ten years ago. In October, 1892, a large stone had been removed by suprapubic operation in Lyons, France, with relief to symptoms for a year and a half. In August, 1894, he had been subjected to litholapaxy, but was not relieved. The operation was repeated in May, 1895, with no better result, and in August, 1895, a perineal lithotomy (lateral) had been done and a stone removed. The symptoms persisted and on the 24th of October Dr. Bell had operated by suprapubic section and removed eight separate stones and about thirty fragments which had apparently not been evacuated after crushing. The condition of the bladder explained why the stones had not been evacuated by either litholopaxy or perineal lithotomy. The posterior wall and trigone consisted of five separate pouches in which the stones and fragments lay. Some of these pouches had broad bases and narrower necks, like bags of corn, and were with difficulty evacuated even when directly beneath the fingers.

The second case was that of an old man of 75, in a condition of senile (or toxic ?) dementia, who had been first catheterized three years ago. He had gone on for two years and a half using a catheter himself, sometimes as often as every half hour, without making any attempt to keep it clean. He carried it about in his pocket, which probably accounted for the fact that when the large calculus was broken across on removal it was found to contain in the centre some fibrous substance resembling hempen cord. The second stone, about two inches long and as thick as an ordinary lead-pencil, probably contained a nucleus also of matter introduced from without, but had not yet been

examined. The third stone was small and wedge-shaped, and was firmly impacted behind the projecting prostate, and would not have been found by any other than the suprapubic route. Both patients had done well.

Dr. W. S. Morrow thought he had seen the second case related by Dr. Bell. The friends ascribed the formation of the stone to the fact that he had been drinking hard water containing a great deal of lime for many years. He asked Dr. Bell if, in his opinion, this would predispose to the formation of stone.

Dr. F. J. Shepherd stated that a year ago he had had a patient who had been repeatedly examined by his physician for stone without success; he, however, after great difficulty, detected one, and performed suprapubic section; a soft stone was discovered behind the prostate. A year later the symptoms had reappeared, and though repeatedly examined, twice under ether, he found nothing. Suprapubic section was again performed, when he found a stone completely covered with mucous which elicited no sound on being touched by an instrument. The patient recovered perfectly.

Dr. James Bell, in reply to Dr. Morrow, stated that the composition of the calculi had not been determined, but he thought they were entirely phosphatic, and that the character of the water drunk had nothing to do with the formation of the stone.

Abscess of the Liver Following Appendicitis.

Dr. Wyatt Johnston described the specimens obtained from this case as follows: There is great enlargement of liver, which presents numerous nodules on its surface, some of a slaty-black hue, others of a dirty white, and close set. On section, numerous abscesses are seen with rather firm walls, very variable in size, some larger than a walnut, but the most smaller. A zone of dark slaty pigment is seen around most of them. They all appear connected with dilated branches of the portal vein of which the intima is roughened, slaty-black, and filled with stringy pus. Areas of liver tissue may be seen in the early stage of necrosis of a greyish colour, as if the tissue had been boiled. In these areas the cells show diffuse fatty degeneration, and the nuclei do not stain. The gall-bladder and duct are normal; so also is the splenic vein and pancreas. The superior mesenteric vein is full of pus and dilated; the intima slaty in colour, roughened and in places disintegrated. The dilatations of the vein caused by the pus form smooth lumps in the mesenteric tissue, one to two inches in diameter. The cause of this condition may be traced to a branch ofthe ileo-colic vein leading to the wall of an old abscess cavity, between the head of the colon and the adjacent part of the duodenum; about one ounce

of pus escaped from this on separating the colon. There is no collection of pus in the region of the amputated appendix. In the lungs there are old tuberculous cavities with much induration. In the liver a few giant cells can be seen about the portal vessels. The mesenteric glands are scarcely affected. Bacterial examination of the pus in the liver abscess showed a mixed infection of cocci and large and small bacilli.

Dr. G. E. Armstrong said the clinical history in brief was as follows: About nineteen days before admission to the Montreal General Hospital the patient was suddenly seized with pain in his abdomen just above the umbilicus. The pain was pretty severe and was soon followed by vomiting. The following day he had a chill followed by sweating. These chills recurred daily, sometimes two or three chills a day, until his admission to the hospital. During this period the pain in abdomen changed its position and became localized in the right side. He was treated for fever and ague and was given large doses of quinine. He had had malaria, the quartan variety, twenty years before. He came to Montreal on the 8th of October, 1895, and consulted Dr. George Wilkins, who recognized some suppurative condition in the neighbourhood of the appendix, and referred him to me for operation.

Examination of the blood by Dr. Lafleur failed to show the presence of the plasmodia malariæ, but showed several melanotic white cells.

I found the appendix distended into a pus sac and adherent to the mesentery. It was removed, the neighbourhood carefully cleansed, and the site packed with iodoform gauze. The separation of the appendix from the mesentery caused a good deal of oozing. Several ligatures were applied and a few points touched with the thermo-cautery. The abdominal symptoms were quite relieved. He had no further abdominal pain and the bowels moved freely.

Pyosalpinx.

Dr. T. Johnson-Alloway read a paper on this subject, which will be published next month.

Dr. W. Gardner congratulated Dr. Alloway on the result of his series of cases. He considered that these cases differed very much in character and acuteness, but he could not go as far as Dr. Alloway and say that every case successfully operated on was a life saved. In many cases after a period the acute stage subsided and the patient was able to be up and about, and though recovery might not be complete, life was not endangered.

With regard to the time at which to operate, Dr. Gardner stated that he preferred to wait until the acute stage was past, unless rupture occurred, which was very exceptional, or urgent symptoms

appeared to endanger life. His reason for delay was that after a certain time had elapsed it was found that the infective organisms had died out, and the pus in the tubes had become sterile, and general infection of the peritoneum was thus much less likely to occur. Drainage, now-a-days, he did not resort to as much as formerly; in a goodly number he had not hesitated to close up the abdominal cavity, and no bad symptoms resulted, but this was not always the case. In choosing between gauze and a tube, he did not find gauze satisfactory, as he had at the end of twenty-four hours removed the gauze, and had it followed by a gush of pent-up fluid. In future he intended to make use of iodoformized or sterilized wicking, which he thought would be more likely to drain. He used gauze to check hæmorrhage more frequently than for drainage. The French operation, which Dr. Alloway condemned, Dr. Gardner felt very differently about, and he had had a good deal of experience with it. Every patient had not got well, but the results in pus-tube cases had been very good. He thought it a valuable operation and that the opinion of the profession was coming round very strongly in favour of it in France, Belgium, and even in America. The cases in which he had done it had been very satisfactory indeed and resulted in complete recovery. Not rarely after the usual method of removal of the appendages patients had recurrent and sometimes profuse hæmorrhage with severe pain, and in the end extirpation of the uterus had to be performed. The operation as done in France certainly looked barbarous, but appearances were a small matter. He thought there was nothing but sentiment to recommend leaving the uterus; the patient was no more unsexed by removing it than removing the appendages alone, and when it is shown that cure of the patient is hastened, it has its advantages. He would not advocate it in all cases, but when he felt sure both appendages were diseased, it was the operation of choice. The operation itself was not easy to perform, one required experience, caution, and even heroism to get through, but it was not as difficult as might be expected, and often adhesions to intestines, which were the worst form of complication, were easily dealt with. Dr. Gardner uses the French method of clamp, and considered the pain which they occasioned for the forty-eight hours while *in situ* was their greatest objection. He found morphine relieved the pain and left no ill effects, and he had lost the former almost hysterical dread of opium or morphia after abdominal sections, and believed now that when cases did badly after using it they did so from other causes.

Pyosalpinx, the speaker thought, was much more commonly due to tuberculosis than was generally held. His own experience and that

of Williams, of Baltimore, had shown this to be the case, and although there were no naked eye appearances to indicate it, when this was the case, the uterus was affected as well, and its extirpation also was indicated.

Dr. ALLOWAY, in reply, said that the cases reported were picked cases of the most severe type, which could not have been relieved by any other form of treatment, though other cases of a less severe type would be published later on. His plan of drainage was a glass tube, with a strip of sterilized gauze in the centre ; it had many advantages over the sucker suggested by Tait, and it need not be changed more than once in the twenty-four hours. Gauze packing, by itself, he only used when there was much hæmorrhage due to oozing. He had seen the French method of extirpation of the uterus performed in Paris by Sigond, Champoniere and others, and it struck him as being harsh and unscientific. He had seen severe hæmorrhage occur which the surgeon was unable to control with the clamp. The operation seemed to be done more by the sense of touch than by the sense of sight and the amount of force required to separate adhesions was often extreme. The greatest disadvantage of this method, he thought, was that the keystone of the pelvis was removed and there would be consequent liability to have prolapse of the bowel. He gave morphia more frequently after operations than formerly, when required to relieve pain, but he thought it unwise to use it before operation, as it had a tendency to interfere with the establishment of the normal perista sis of the intestines after operation.

An Unusual Form of Skin Disease.

Dr. J. ALEX. HUTCHISON reported the case. (See page 429.)

THE

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GALL-STONE SURGERY.

The region of the gall-bladder and ducts is one which has only been invaded by the surgeon quite recently, but already many cases are on record to show the brilliant results which may be obtained in patients who were formerly doomed to months, if not years, of suffering.

The ideal operation is undoubtedly to open the gall-bladder, remove the stones, suture the opening in the gall-bladder and drop it back, closing the abdomen without drainage. But the cases in which this can safely be done are few and far between, and that for various causes. Not infrequently suppuration, induced by the presence of the calculi, necessitates drainage of the gall-bladder; or, more frequently it may not be possible to remove the obstruction in the cystic or common duct; or the walls of the gall-bladder may be so friable from the inflammatory action which has been going on that the sutures cut out and do not hold the edges in apposition. So for many reasons this operation has been practically abandoned.

The ordinary operation of cholecystostomy was first performed by Bobbs, of Indianapolis, in 1867, but it was not until 1878 that the operation was perfected and popularized by Marion Sims. Since then the surgery of the gall-bladder has advanced rapidly. Cholecystostomy having been found a safe operation, although one not always perfectly satisfactory in its results, other and more severe operations have been attempted, and success has been achieved.

Langenbuch, in 1880, performed the operation of cholecystectomy, removing the whole of the gall-bladder and ligaturing the cystic duct. This is a serious undertaking, however, and the principal reason for which it was performed, viz., to prevent a recurrence of the gall-stone formation, has been found not to be well founded, as recurrences are very infrequent in any case. It is usually preferred to either crush an obstructing stone *in situ* in the duct by means of padded forceps

after the method of Lawson Tait, or still better, to remove it by opening the duct and afterwards suturing the opening, as was first done by Thornton, and a successful case of which is reported in the JOURNAL. Cholecystenterostomy has rather fallen into disrepute on account of the high mortality attending the operation, which, moreover, is difficult of performance, especially if the gall-bladder is shrunken or its walls thickened by inflammatory tissue. The operations of cholecystostomy and choledochotomy are eminently safe ones in the hands of competent surgeons, as may be seen from the statistics quoted by Dr. Armstrong, the mortality being *nil*, except in those cases where there is malignant disease. Where this exists a new element of danger is introduced, namely, hæmorrhage, which occurring in a patient already debilitated by the jaundice and the carcinomatous disease is of serious moment. However the greater number of even these cases are benefited by the operation and their lives are in no wise shortened, but rather the reverse.

Taking these cases as a whole, the mortality is so low compared with the benefit to be derived from a successful operation, that we have no hesitation in urging our readers, nay, more, in saying that it is their duty to advise their patients to submit to this procedure. Furthermore, it is very probable that the irritation produced by the gall-stones is responsible for many of the cancers which develop about the ducts, so we have another and cogent reason for advising early operation : it is a prophylactic as well as a curative measure.

On the evening of the 5th of November a dinner was given in the Windsor Hotel to Sir William Hingston by the medical profession of Montreal, irrespective of nationality, the occasion being the distinction recently conferred on him by Her Majesty. Dr. Craik occupied the chair, and, after the customary loyal toasts, proposed the health of " Our Guest " in a very neat and appropriate speech. Dr. Rottot followed in French, and several volunteers took advantage of the opportunity to congratulate " our new medical knight.' Sir William replied briefly, but with considerable feeling. The dinner was admirably served, and altogether the evening passed most pleasantly with speech and song. About one hundred and fifty subscribers sat down. The guests from a distance were Sir James Grant, of Ottawa, and the Hon. Dr. Sullivan, of Kingston, who spoke to the toast of the House of Commons and Senate of Canada respectively.

Dr. T. D. Reed (McGill 1871) has been appointed Honorary Dean of the Montreal College of Pharmacy. The doctor has been identified with the College since its foundation, and has held the chair of Materia Medica since 1877.

Obituary.

DR. JOHN BRODIE.

The very sudden death, from apoplexy, of Dr. John Brodie, of Honolulu, occurred on the 2nd November, 1895.

Dr. Brodie graduated in medicine from McGill University in 1877. After spending some time in London, he started practice in Montreal. During the two or three years that he practised here he made many friends and was a favourite with his professional brethren. He then removed to Honolulu where he soon became the most prominent physician in the Sandwich Islands. He was a man of many sterling qualities ; a man of good judgment and a kind heart,

He was the first to recognize the true nature of the recent outbreak of cholera in Honolulu. His death occurred just after he returned from a holiday spent in California. His many friends in Montreal will learn with regret of his death at the early age of forty-two years.

DR. THOMAS KEITH.

Thomas Keith died in London on the 9th of October, after many years of delicate health and suffering, during the greater part of which he heroically kept on with his work. The writer never had the honour of knowing this man. That he was great all the surgical world will unanimously admit ; that he was good and altogether lovely in personal character is the universal opinion of those who knew him well enough to judge. The son and grandson of Presbyterian ministers, Keith was one of seven sons, of whom three were medical men. He was apprenticed to Sir James Y. Simpson, and after he graduated became house-surgeon to Mr. Syme, the famous Edinburgh surgeon, who predicted for him a great future. Although he graduated in 1848, it was not till 1862 that he became much attracted to surgery. In that year he did his first ovariotomy, and so began a career which has made his name of world-wide renown in abdominal surgery. Beginning work at a time when all abdominal surgery was most unpopular because of its enormous mortality, Keith did much to rescue it from disfavour. Before adopting antiseptic methods as they were then understood he had saved 86 to 90 per cent. of his cases results that had never been hitherto approached, but under the antiseptic system 97 of 100 recovered, and of the 97 recoveries 73 were

consecutive. In hysterectomy for myoma Dr. Keith was also a pioneer. Though conservative, operating only on cases where symptoms, bleeding or other, were very marked, his results were at that time phenomenal, three deaths in thirty-three cases. Notwithstanding this, when Apostoli published his methods and results Keith studied them carefully and adopted them for all but extreme cases, which he reserved for the knife. It is needless to say that this action came with an intense shock to the surgical world. Its motives and the wisdom of it were severely questioned in many quarters.

At this time Thomas Keith and his son, Skene Keith, who was following in his father's footsteps, removed to London. The wisdom of this step has been much doubted. At all events failing health prevented his doing much more work, and for the last three years very little indeed.

Keith wrote but little, what he did write was remarkable for earnestness and conscientiousness. His contributions to ovariotomy were published in the *Edinburgh Medical Journal*. Other papers of later date were published in the *British Medical Journal*. These were amplified and published in a small monograph embodying brief reports of all his cases of operation for myoma of the uterus, and in a later one on the electrical treatment of the same class of tumours.

Dr. Keith leaves two sons in the medical profession Mr. Skene Keith and Dr. George Keith, both of whom devote themselves to the department of medicine with which their father's name is so honourably associated. W. G.

Dr. James C. Rattray (McGill '74) died at Cobden, Ont., on Tuesday, November 12th, aged 44 years and 3 months.

NEW BOOKS, ETC., RECEIVED AND NOTED.

A Text-Book of Physiology. By M. Foster, M.A., M.D., &c. Lea Brothers & Co., Philadelphia. 1895.

Practice of Medicine. By William Osler, M.D. D. Appleton & Co., New York. 1895.

An American Text-Book of Obstetrics. W. B. Saunders, Philadelphia. 1895.

A Manual of Operative Surgery. By Louis A. Stimson, B.A., M.D. Lea Brothers & Co., Philadelphia.

The Pathology and Treatment of Venereal Diseases. By Robert W. Taylor, M.D. Lea Brothers & Co., Philadelphia.

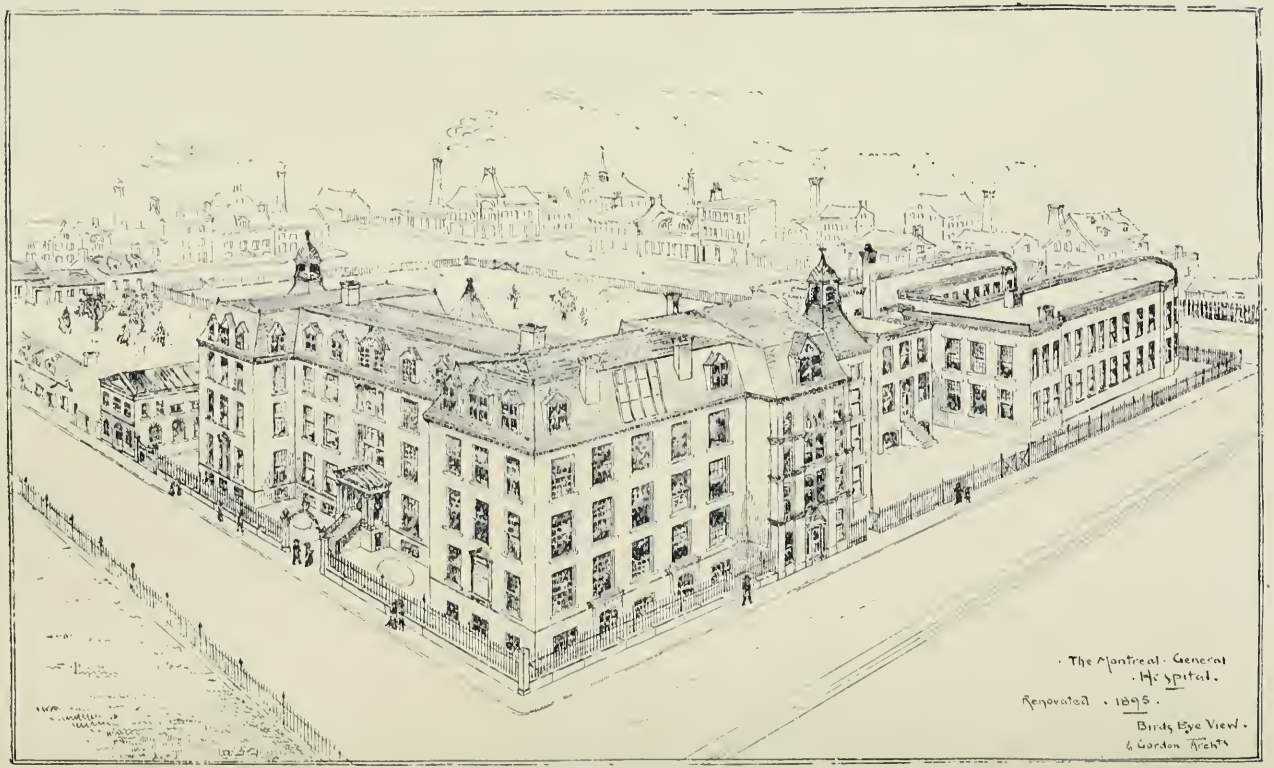
Manhattan Eye and Ear Hospital Reports. Vol. II. January, 1895.

Flat-Foot, its Correction and Comparative Study with the Foot of the Orang, Chimpanzee, Gorilla and Baboon. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Lupus Treated by Galvanism. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Double Club Feet and Hands—Treatment. By B. Merrill Ricketts, Ph. B., M.D. 1895.

Clinical Notes on Psoriasis. By L. Duncan Bulkley, A.M., M.D. New York. 1895.



MONTREAL GENERAL HOSPITAL.

THE

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Original Communications.

FURTHER OBSERVATIONS UPON MADURA FOOT DISEASE IN AMERICA.[1]

By J. G. ADAMI, M.A., M.D.

Professor of Pathology, McGill University; Pathologist to the Royal Victoria Hospital.

and

By ROBT. C. KIRKPATRICK, B.A., M.D.

Demonstrator of Surgery, McGill University; Surgeon to the Montreal General Hospital.

At the meeting of the Medico-Chirurgical Society on June 15, 1894, we exhibited a specimen of the amputated limb from a case of madura foot disease, or mycetoma pedis, and with that showed specimens of the granules obtained from the sinuses, and sections exhibiting the specific fungus *in situ*. At that time we had not the opportunity to study fully the literature of the occurrence of this disease in America, but we pointed out that, to the best of our belief, ours was the first case of the kind reported in any English-speaking country. Since then we have been able to make fuller studies upon the subject, and at the meeting of the Association of American Physicians at Washington in June, 1895, we went a little more fully into the description of our case and of the microscopic examination of the same.

When we brought our specimen before the Society Dr. Gordon Campbell recalled that there was the report of a previous case of the disease mentioned in *Crocker's Handbook of Skin Diseases*. We have been able to obtain the original paper upon the subject by Kemper and Jameson in the *American Practitioner* of September, 1876, there referred to. To this we shall refer later, suffice it here to say that Kemper's description of his case presents so many departures from

[1] Read before the Montreal Medico-Chirurgical Society, November 29, 1895.

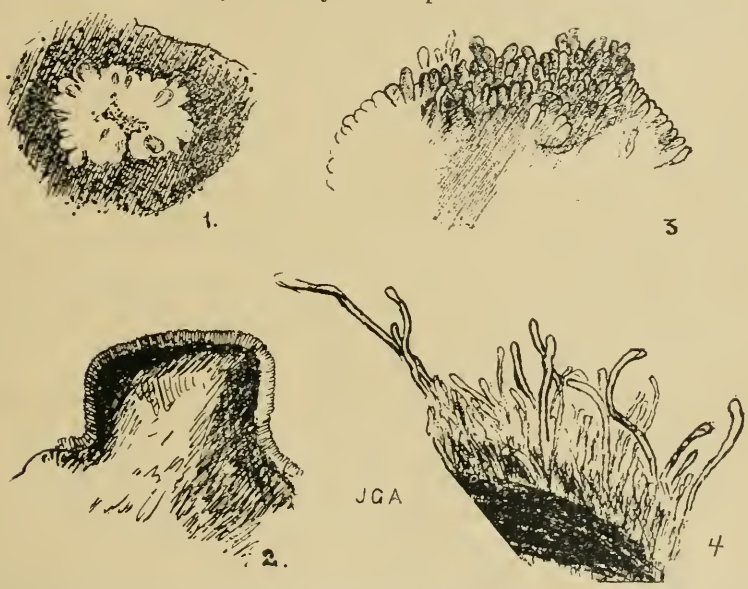
the usual history and appearances that it would seem improbable that he was dealing with a case of the disease proper. Thus, while we do not attach much importance to questions of priority, we think we may say at least that ours is the first indubitable case of mycetoma recorded as occurring upon the American continent in one who had never travelled outside that continent. We stated at Washington that if one case has occurred upon this continent, it is fairly certain that others have, and indeed Dr. Shepherd assures us that some years ago a patient of his at the General Hospital had a diseased foot resembling in all respects our own specimen, in external appearance and in the development of the very characteristic buttons of flesh forming the

From photograph of authors' case, taken by Mr. Patrick at the Montreal General Hospital, June, 1894, prior to operation.

opening of sinuses, and by a curious coincidence, at the nineteenth annual meeting of the American Dermatological Association, held here in September of this year, Dr. J. N. Hyde, of Chicago, exhibited to the Association drawings of a foot, together with prepared sections from the subcutaneous tissue of the same, and in ignorance of our previous publication before this Society and the Association of American Physicians, concluded that the disease did occur in America. Like ourselves he held that Kemper's case was certainly a most doubtful example of the disease; and indeed he went further and felt assured that it could not be the proper Madura foot.

Only this afternoon we have received the information from Dr. Lamb, of the Army Medical Museum at Washington, that there exists in that museum a foot removed some years ago by Dr. Pope, of the U. S. Army Medical Service, from a Mexican in Texas, and presenting all the characters of mycetoma pedis. The condition would seem to have been recognized as such at the time of removal, and the clinical history given is said to bear out the diagnosis. Dr. Lamb believes that the case has not been published.

With great courtesy Dr. Hyde has placed his material at our dis-



1. Reniform fungus mass lying in granuloma of small round cells, Dr. Hyde's case (hæmatoxylin and eosin). Zeiss eye-piece, 4 lens A. Outlined by Zeiss' camera lucida.

2. Portion of fairly large fungus mass higher magnification, author's case (eosin and methylene blue). To show arrangement of peripheral clubs and central mycelium. Zeiss Oc. 4. Apochromatic 4 mm.

3. Portion of another mass, still higher magnification, author's case. Discharge from sinus mounted in glycerine, to show peripheral clubs. Zeiss eyepiece, 4 lens D.

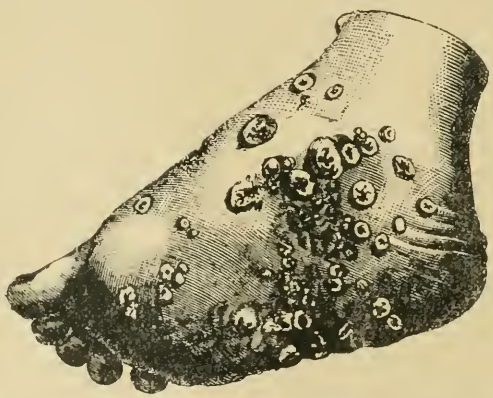
4. Ditto, to show giant clubs.

posal, and indeed has forwarded to us the whole of the removed limb with the exception of the great and second toe, with the solitary stipulation that we should return to him the preparation of the bones. This evening, with his permission, we bring before the Society the mounted preparation of the bones from his case, and for comparison exhibit at the same time our own specimen, which has not yet been shown to the Society. It will be seen that the diseased bones have strongly marked characters. These characters had already been pointed out by Vandyke Carter more than twenty years ago. We do

not know, however, that the there exists in any European or American museum a specimen of the bony skeleton from a case of mycetoma.

The two specimens exhibit the peculiar features of mycetoma as it affects the bones of the foot, namely, the development of sinuses of fairly large size and comparable with the sinuses which ramify through the soft parts, and with these a condition of rarifying osteitis.

The history of these two cases is very similar. Dr Hyde's was that of a native of the United States, who had never been out of the country, born of Bohemian parents, and aged 20, in whom the condition had been developing for thirteen years; a hard nodule was first noticed in the skin of the sole, and the condition gradually involved the anterior third of the foot. Buttons of flesh developed, some of them being present in large coalescing patches, others being isolated. These buttons formed the mouths of sinuses, passing in all directions internally.



From a drawing of a specimen of Fungus Foot in the Madras Museum, in *Druitt's Surgeon's Vade Mecum*. Eleventh Edition. London. 1878.

Our own case, it may be remembered, was in a French Canadian, aged 21, and the condition began ten years previously as a bluish spot upon the inner side of the right foot, developing only some months later into an open sore; while yet later there appeared on the sole, between the first and second metatarsals, one of the characteristic buttons of flesh. In both there was characteristic swelling and deformity of the affected part, with notable absence of pain. In both also from the sinuses and in sections of the affected region there were obtainable the granules of the fungus, which on microscopic examination resemble actinomyces in the broad details of their structure. Both, then, present the classical features of the ochroid variety of Madura foot though we observe from the short account of Dr. Hyde's case, given in the November number of the *Medical Journal*, that although the

fungus itself was not pigmented, there were pigment granules present in the secretion.

In our paper at Washington we pointed out that in one preparation we found jointed hyphæ present, and we expressed a doubt as to their meaning, and drew attention to the fact that Carter and Bassini had also figured such jointed hyphæ. We believe we are right in stating that Carter's material was in the main obtained like this one specimen of ours, from already opened sinuses, and after further search through our material and a study of that presented to us by Dr. Hyde we can arrive at no other conclusion than that these hyphæ are an intrusion. The ray fungus is the specific organism in the disease, the branched mycelium and branched hyphæ occurring parasitically and forming a contaminating growth in the discharge within the sinuses.

In place of the very characteristic granules, Kemper and Jameson described a white, fluffy, mould-like substance, with yellowish, highly refractile bodies forming mulberry-like groups. In place of a slowly developing condition their case was only of six months' duration, and instead of the very remarkable absence of pain, associated with this very extensive diseased state, they describe a pain so intense that the patient gained very little sleep.

It may be well here to say a few words describing the specific fungus of the disease. Curiously enough Vandyke Carter, to whom we owe the first full description of the condition of Madura foot, gave it the alternative name of "fungus foot disease." This, as has been already hinted, was due to mistaken idea as to the parasite causing the disease. Nevertheless, what we know to be the specific organism is more of the nature of a fungus than are the schizomycetes of ordinary infectious diseases, and the alternative name still holds.

The organism is apparently closely allied to the moulds and presents a central dense mycelium of interlacing filaments, which at the periphery pass into radiating club-like bodies. This presence of these clubs gives an appearance singularly like that of actinomyces; we are evidently dealing with one of the ray fungi. Yet in several details, and notably in the size of the clubs, in their tendency to bifurcate, and in the character of the mycelium, there are well-marked differences separating this fungus of Madura foot disease from the ordinary actinomyces as it affects man and cattle. Of late both Vincent in Algeria and Surveyor in India (with Boyce in London) have been able to gain pure cultures of this micro-organism, and the descriptions given by these observers makes it still more evident that the organism is distinct from actinomyces. It is interesting to note that Boyce in his description mentions the presence and the development of small

reddish granules in the culture media, apart from the growing fungi, which may possibly be comparable with the small pigment granules seen by Dr. Hyde in the discharge from the sinuses in his case. Unfortunately neither Dr. Hyde nor we ourselves recognized the condition in time to make cultures. In view of the importance of studying further this interesting condition of mycetoma as it occurs on this continent, we would strongly urge anyone in whose practice there occurs a case resembling the descriptions given of this disease to communicate, if not with us, at least with the bacteriologist of the nearest large town, and to ensure that either before or immediately after amputation of the limb opportunity is given for an attempt to gain cultures of the fungus. The lesion is very characteristic ; the swelling of the foot and the development of the little fleshy button-like mouths of the sinuses are in themselves sufficient to draw attention to the fact that a case of the disease is present.

We here append illustrations, both of the foot in our own case, taken from a photograph made before amputation, and to compare with this we reproduce an engraving made from a specimen in the Bombay Museum and given in *Druitt's Surgeon's Vade Mecum.*

A CASE IN WHICH CHOREA OCCURRED IN TWO SUBSEQUENT PREGNANCIES—SPONTANEOUS DELIVERY AT TERM—RECOVERY.

By J. C. Cameron, M.D.

Professor of Obstetrics, McGill University; Chief of the Montreal Maternity.

On June 12, 1895, Dr. R. C. Buist, of Dundee, read a paper before the Edinburgh Obstetrical Society on "Chorea gravidarum, a statistical review of the published cases," in which he analyzed the records of 285 cases of chorea in relation to pregnancy occurring in 226 individuals. After excluding doubtful cases he found 273 attacks of true chorea in 214 patients. The mortality was 1 in 7; in 7 cases the chorea became chronic, recovery taking place three years later under treatment; 60 cases recovered before delivery, 90 recovered postpartum. Insanity, usually supposed to be of common occurrence, was not found to be frequent and was generally temporary. It was also evident that in cases of recovery the patient may possibly escape an attack in subsequent pregnancies. It is clear that pregnancy increases the condition of nervous instability and renders the common causes of choreic movements more effective, but it has not been shown that otherwise chorea exerts any specific influence upon pregnancy. With regard to child mortality, the table shows that 14 patients died undelivered, 23 were delivered before the end of the sixth month; 14 children were still-born, 12 were small or weakly, 58 are described as alive or well, 6 had convulsions at 2 and 3 days, 3 and 7 weeks, and $2\frac{1}{2}$ years respectively. In many of the records no mention is made of the condition of the child.

In connection with this subject the report of the following case hitherto unpublished, may be of some interest:

Mrs. H., æt. 27, III-para, came under observation in May, 1877 about the beginning of the sixth month of pregnancy. She was much emaciated, anæmic, restless, unable to lie down in bed, with general choreic movements, most marked in the arms and face. She was unable to feed herself and suffered greatly from loss of sleep; much difficulty was experienced in administering sufficient food to maintain life.

Family history—The father was epileptic; no other members of the family had developed neurotic symptoms.

Personal history—She has suffered from rheumatism since early childhood, and recollects having had twitchings of the face at various

times, but not within eight or ten years. Dysmenorrhœa has been a constant trouble. During her first two pregnancies she suffered very much from vomiting, which weakened her, and she finally miscarried about the eighth month on both occasions. The children were born alive, but were feeble and lived a few weeks only. After the conclusion of labour she regained health rapidly.

August 8th—Sedatives and antispasmodics were tried in vain. The only treatment which offered partial relief was strychnine in full doses, pushed to the limit of tolerance, along with ether-spray to the spine twice daily. After the spray she could swallow some liquid food and sleep quietly in bed for an hour or two. Her labour was rapid, almost precipitate, and it was found necessary to administer chloroform in order to diminish the severity of her sufferings. Any attempt to make a vaginal examination was followed by the greatest distress and a marked increase in the violence of the pains. The child (a boy) was thin and ill-nourished, but otherwise well developed. He was brought up on the bottle and developed into a fine sturdy child with no neurotic tendencies, but finally died of diphtheria when about three years old. The mother regained health and strength rapidly after delivery, and did not seem to have been harmed by the attack of chorea.

June 30th, 1880—This patient having become pregnant again, developed chorea during the seventh month. It was not so severe as in the previous pregnancy, and was held well in check by strychnine and the ether-spray to the spine as before. She did not become so emaciated and was stronger at the time of her confinement. Labour was rapid (4¼ hours), the pains being violent and continuous, as on the previous occasion. The child (a girl) was medium-sized and well developed. She was brought up on the bottle and, with the exception of diarrhœa and febrile attacks while teething, progressed satisfactorily. The mother regained her usual health, and when the family removed to another part of the country both she and her child were well.

UPON THIRTY CONSECUTIVE CASES OF REMOVAL OF THE UTERINE APPENDAGES FOR SUPPURATIVE DISEASE.[1]

By T. Johnson-Alloway, M.D.

Assistant Professor of Gynæcology, McGill University ; Gynæcologist to the Montreal General Hospital.

I wish this evening to bring before you my experience in some thirty consecutive cases of operation upon a condition of which it may truly be said that, provided the patients come to us in a reasonable time, we can be assured in each instance not only of relieving, but actually of saving a life.

Acute or chronic suppurative disease of the Fallopian tubes is a subject which has for ages engaged the attention and taxed the ingenuity of the most intelligent members of our profession in all parts of the world. Nothing could be done to arrest the disease, and patients passed, we may truly say in thousands, through the progressive stages of septic intoxication and pyæmia with, at the most, only a poor attempt at temporary relief in the shape of ever-increasing doses of quinine or of opium, with ineffectual counter-irritation in the shape of much blistering. When operation was first attempted the mortality was very large, perhaps on account of the fact that it was only attempted as a last resource, the disease having already progressed to a condition of diffuse suppurative peritonitis by rupture.

Now-a-days, when the general practitioner is able to diagnose a pus tube or tubal pregnancy, and this at an early stage, we can assuredly include operations upon the tubes as among the great triumphs of modern surgery. We can promise relief to our patients with freedom from future trouble, for with reasonable care operation leads to no ill effects.

In the thirty consecutive cases I now bring before you there was not a single death. Every patient recovered.

Of these cases I would wish to touch briefly upon the special points in connection with a few of the more important.

Case I.—The patient here was a stout lady 40 years of age, nulliparous, and weighing 225 pounds. She had been a great sufferer from pelvic pain for a long period. Her greatest trouble was, however, sciatica of the left lower extremity. Here the pain was constant,

[1] Abstract of paper read before the Montreal Medico-Chirurgical Society, November 1, 1895.

and treatment of all kinds for sciatica and rheumatism had been without effect. Upon examination the left side of the pelvis was found to be filled by a hard immobile tumour, the right pelvis being free. This hard mass was found at the operation to be a very large adherent tubo-ovarian abscess with thick fibroid walls. This tumour had to be shelled out with the hand, and so extensive and firm were the adhesions that the posterior layer of the broad ligament and the peritoneum covering the posterior bony wall of the pelvis were, of necessity, removed with the mass. As a consequence there was very free hæmorrhage; this was controlled by ligatures, and a glass drainage tube was left in the wound for forty-eight hours. Recovery was uninterrupted; the highest temperature was 101° and highest pulse 110. The patient returned to her home in four weeks after the operation. She has been ever since (twelve months) free from pelvic pain and from sciatica. This last had clearly been due, therefore, to the pressure of the tumour upon the sacral nerves.

In this case, although the other tube and ovary were buried in dense adhesions, there being no active abscess formation, they were not interfered with.

The next case illustrates how much can be successfully accomplished in bowel surgery, even under the most trying circumstances.

Case ——.—This patient was a lady aged 27, and nulliparous. During the past two years she had suffered severe pain from pelvic inflammation with associated profuse leucorrhœa and menorrhagia. Lately she had experienced chills and fever, followed by prostration. She was, in short, a complete invalid. Upon examination the uterus was found fixed and there was a mass in the right side of the pelvis.

At the operation all the pelvic contents were found massed together and adherent, the omentum and coils of the intestines being firmly attached to the uterus, the tubes and broad ligaments. So dense, in fact, were these adhesions that the bowel gave way in several places upon the least pressure being made while trying to find the line of cleavage. The rents were repaired by the Czerny-Lembert method of suturing, and following upon this, further support was given over the rents by suturing over them the posterior face of the uterus and some of the broad ligament at either side. Both tubes were found filled with pus and much distended; they were removed. Although the patient had to remain in hospital for three months and had a very up-and-down course, the abdominal wound remaining open for a long time, when seen a year later she was the picture of robust health

In this case there was so little, if any, sound bowel tissue surrounding the tears wherein the sutures could hold that I cannot but

regard the plan of suturing the bowel to the healthy portions of the broad ligament as the procedure which ensured the closure of the intestinal wounds. Although, as I have stated, the patient passed through a slow and anxious convalescence and the main wound was long in closing, and although there was extensive suppuration in the track of the drainage tube, there was at no time escape of fæces or of gas from the wound. In this case, as a further complication, six months after the operation there was what appeared to be metastatic inflammation in the left knee-joint, necessitating forcible extension and fixation under ether (by Dr. Bell).

In another case, that of a young woman of 21, complaining of the usual constant pelvic pain, and having a temperature varying from 99° to 104° for four days prior to the operation, examination revealed a mass in Douglas's pouch, with exquisite tenderness over the whole pelvic floor. Operation showed the mass to be a large distended pus tube, containing greyish-red purulent fluid. The patient was discharged three weeks after operation.

The last case that I would bring before you is one that is typical of 90 per cent. of the cases of pyosalpinx. The case is that of the daughter of one of our employées in the Montreal General Hospital. She has been married ten years and is childless. She has been seriously ill for about ten weeks with severe pelvic pain, great dysmenorrhœa, profuse menorrhagia, recurring every two or three weeks, excessive muco-purulent discharge, great prostration, anorexia, loss of weight, hectic, chills and fever, with church-steeple temperature and rapid pulse.

There was headache, dry tongue, and a general nervous sense of apprehension. There was some tympanites, with great pain on pressure over the abdomen.

Upon examination the uterus was found fixed, and attempts to move it caused acute suffering. There was a mass on either side of and surrounding the cervix in Douglas' pouch. Cases such as this demand immediate attention. Here I found, as had previously been suspected, a ruptured pus tube. Both tubes contained pus ; that on the left side had undergone recent rupture. After removal of the appendages the cavity was irrigated with sterilized warm water and then closed, a glass drainage tube being left in for forty hours. Here the temperature, which previous to operation had been 104°, dropped to 99°, and has not risen during the following ten days.

My experience in these cases has led me to the following conclusion :

1. An exploratory incision in cases of doubt, when performed with

proper asepsis and by skilled hands, cannot involve any risk to the patient and may save her live.

2. The fullest success is gained by treatment in the hospital as opposed to the private house. I here but confirm the experience of all my confrères.

3. I am led to favour the use of the glass drainage tube in some special cases, rarely leaving it in the wound more than forty-eight hours.

4. In desperate cases of otherwise uncontrollable hæmorrhage I am convinced of the great value of gauze packing of the pelvis.

5. Where the abscess process involves the proximal portion of the Fallopian tube and its intramural continuation, I have found that excision of the affected horn of the uterus is associated with the best results.

6. Although in such cases the uterine wall is throughout degenerated (cloudy degeneration) and is œdematous, friable, and in appearance like lard, and one is often tempted to extirpate the whole organ, it is quite unnecessary.

7. Where pyosalpinx has led to extensive adhesions and tissue destruction, intestinal obstruction is liable to occur in a certain percentage of cases as a consequence of the secondary post-operative adhesions. I have had two such cases. In one there was such extensive adhesions, that it was impossible to remove the tube without also removing the sigmoid flexure. I therefore tapped the pus sac per vaginam. The patient recovered perfectly, but I would not recommend such a difficult and, I hold, unscientific procedure, save in such cases as this, where the abdomen is first opened and the direction of the trocar determined by the assistant.

8. It is unscientific, and worse, it is unpardonable to follow the French procedure and remove the uterus when it is not involved. The uterus should, wherever possible, be allowed to remain, as it forms the keystone of the pelvic arch and tends to prevent a hernia in the time to come.

NOTES ON THE EXAMINATION AND MEASUREMENT OF ATHLETES.[1]

By R. Tait McKenzie, M.D.

Medical Examiner and Instructor in Gymnastics and Assistant Demonstrator of Anatomy at McGill University.

This subject is perhaps rather an unusual one to be offered for discussion to a society such as the one which I have the honour to address. Nor is the title quite a true one, for many of the men examined could hardly by any stretch of imagination be termed athletes, but I have thought that a short account of the work being done in this department at McGill would be of interest, and possibly of some small value to all members whose practice brings them in contact with life insurance or with the training of children and young men.

Although this year's Calendar is only the second in which we read that "all students desirous of taking part in football matches, or otherwise engaging in violent athletic contests, must pass a medical examination to be held under the direction of the Superintendent of the Gymnasium," still that clause is the result of a strong feeling existing for years, that such a regulation was necessary to direct the student in his athletic sports and to prevent unsound men from injuring themselves, ignorantly in most cases, yet sometimes beyond repair.

McGill may be the first Canadian university to seriously cope with this problem, but the most successful and systematic work among students has been done in the great American institutions of learning.

Amherst started a system of compulsory physical examination and education as far back as 1861, and Dr. E. Hitchcock began taking certain measurements, that men might see their own progress during their college course, but with the ulterior object of getting at the measurements and physical characteristics of the typical American student. There the medical aspect of the work has been extended to lectures on personal hygiene to freshmen, and to systematic training for all the students of the college.

In Harvard the same work was inaugurated in 1879, under Dr. D. A. Sargent, whose anthropometric conclusions were embodied in two statues showing the typical American student, male and female. Yale, Cornell, Leland Stanford, Jr., and others require a physical as well as

[1] Read before the Montreal Medico-Chirurgical Society, November 15, 1895.

a scholastic examination of students after matriculation, whether they intend to take part in athletics or not.

Wellesley, the most prominent of the American ladies' colleges, has carried on the examination and measurement of all its students for some years, with the idea of following the effects of systematic exercise on health and development in young women.

In Oxford last summer I saw a series of records taken by Dr. Horatio Symonds, showing the measurements and strength of the university crews for the past few years, with notes on their physique and health, and I am informed that some system less exact and rigid is also in vogue at Cambridge.

It is now little more than a year ago that the Committee on Grounds and Athletics of McGill decided to make it compulsory for all men, before entering athletic sports in any form, to present a medical certificate of soundness. As this work came within my department I set myself to design a form that would include as much as would be of value and at the same time would not be too long or cumbrous.

This form was printed and this year revised in the light of a season's experience.

I will briefly review one of these blank forms, which every man must have filled before he is given a certificate.

The student fills up the first part. The questions in it relate principally to family history and past health, and the answers are, of course, strictly private. After the name and date of birth the first question is, "What work or exercise are you accustomed to take?" This is to get an idea of the man's past life and habits, indoor or outdoor, active or sedentary. The next asks about any strong resemblance to either father or mother, that hereditary taints may be more easily recognized; the next one taking up the cause of death of the parents, which, together with one that relates to the frequency of the occurrence of certain diseases in the family, such as rheumatism, scrofula, tubercle, and neuroses, concludes the family history.

The personal history begins by asking if there has been any serious illness that required rest in bed for two weeks or more, for a young man is more apt to remember that fact than any other in an illness.

The next two take up the condition of the eyes and ears. The digestive system is included in four questions, the first on digestion, the second on occurrence of bilious attacks, the third and fourth on constipation and diarrhœa.

The respiratory system has one question on the presence of nasal catarrh. The question 'Can you breathe freely through each nostril?'

is intended to find deviations of the septum or other obstructions in the air passages. The tendency to take cold and its mode of onset and progress are taken up in the next question, "Is a cold most likely to locate in your nose, throat or lungs?"

The most important part of the personal history relates to the heart and circulation, and their condition is ascertained by questions on palpitation, the frequency of cold extremities and tendency to syncope.

The only nervous symptoms inquired after are headaches and insomnia, and the last two questions relate to the use of alcohol and tobacco.

The form concludes with an open question, asking if there is anything not covered by previous questions that should be known. One young man added, as something the examiner might overlook but ought to know, "I am tall, thin, but tough."

When the student has filled this form he comes to the physical examination. First the heart is carefully examined, the patient standing, the shape of the thorax noted, flat, square or round, also the abdomen, flat, round or protruding. Then the condition of the lungs, the presence of skin eruption, amount of fatty tissue, and the condition of the nervous system, or rather the temperament of the man, sluggish, active or neurotic.

After the condition of the eyes, ears and nose has been noted, the man stands straight with heels together, and the shoulders are observed as square, sloping, stooped or uneven.

The legs are straight, *genu valgum*, or *varum*, and the spine is examined for actual curvature, or for exaggeration of the normal curves. Then the habitual posture is noted, erect or careless, weight on right or left foot, for here we often get an explanation of uneven shoulders and protruding flabby abdomen, or the occurrence of what Roth aptly calls the Gorilla type of figure, abdomen protruded and chest sunken.

The condition of the muscles is noted next, flabby, soft, firm or hard.

Then the groups are noted in detail as being very poor, poor, fair, good, or very good. After this inspection the pulse, standing, is taken, the patient then runs 100 yards at top speed, and the pulse and heart are examined again.

He is now ready to be measured, and after getting his age, the net weight is taken, then the height and sitting height to get the proportions of trunk to legs. Breadths are taken, with a sliding rule of neck, shoulders, chest, waist and hips, lengths of the two segments of the upper extremity, the forearm being taken from the olecranon

to the middle metacarpo-phalangeal articulation, as representing more truly the lever that is used in lifting by the closed hand or fist, than would the finger tip. Lengths of femur and tibia show proportions of the lower extremity and have an important bearing on power and therefore on athletic ability, as will be seen later.

From the relation of the depth of the abdomen to chest we find the condition of the man. The girth of the chest is taken at two levels, the upper above the nipple, and the second below the pectoral line; both are taken during forced inspiration and forced expiration. The upper one is peculiarly liable to fallacy from the tricky contraction of the pectorals and latissimi dorsi, so that the lower is more truly an expansion measurement. The other girths are those of the limbs, taking both muscular and bone measurements, as in the calf and knee. On the relation of bone to muscle girths will often depend the prognosis as to musucular development. A very large instep will show a tendency to flat-foot.

The measurements conclude with a test of the lung capacity by means of the wet spirometer.

These measurements are taken again in the spring and repeated from time to time during the students' course.

In all, 204 men have presented themselves for examination and they have been divided into three main classes:

Class A, the sound.

Class C, the unsound, and

Class B, the specials. who, although permitted to enter certain forms of athletics, require special work for special defects or weaknesses.

Those whom I designate as sound numbered 139 out of 204, and a few facts about these men may be of interest.

The pulse rate, standing, averaged 75·6 and after exercise 135. Keating gives the normal as 72, but the slight increase is probably due to the many who, from exercise or excitement, had a quickened heart, not to speak of their youth. The lowest rate observed was 50 and the highest 100. After a 100-yard dash the rate rose to an average of 135, the lowest being 100 and the highest 160. If the pulse became irregular they were put into class B or class C. The chest expansion varied from 1·5 to 4·7 inches with an average of 3·2, and the lung capacity varied from 175 to 400 cubic inches, average 251, a little below the average Yale student, as shown by a chart of their measurements designed by Dr. Jay Seaver.

Although the spirometer test is called lung capacity, it should really be thoracic mobility, and although it varies with the shape of the

chest, being largest in flat broad chests, it at least shows the possibilities of the thoracic walls to cope with forced respiration.

The measurements of the relation of bone to muscle girths show the possibilities for muscular development. Small bones and large muscles would mean little improvement, and the reverse would show great possibilities.

Three types of figure predominate and shade insensibly from one to the other. The stocky, short, heavy type, with large neck, sloping shoulders and long body, very short legs and heavy bones, with tendons short, compared with the muscle bellies. These are men of great vitality and muscular strength, who excel on the football field.

The second, tall, square-shouldered, flat thorax and abdomen, body and legs evenly proportioned, but with very long thighs and short legs. These are the runners, vaulters and jumpers, while the third have short bodies, long limbs, thighs short in comparison with the legs and small bones. These are men of low vital power and of poor potentiality, physically speaking.

The special cases in class B, 49 in number, were so called from special defects that required correction, but did not exclude them from athletic sports. These defects were chiefly circulatory and postural.

Taken as a class, they were inferior in both heart and lungs, for the pulse rate averaged 78·7 before and 138 after exercise, an increase of 3 and 4 beats per minute ; the expansion was slightly less, and the capacity 7 cubic inches less than the average in class A.

The cardiac disturabnces were, so far as could be ascertained, functional only, and were principally intermittence or undue rapidity of the pulse. If the pulse rate was above 100 before or 150 after exercise he was included in this class. Of the postural defects, a drooping or lowering of the right shoulder was found in 13 cases. This was associated with actual scoliosis in five cases. In only one case was the left lower than the right.

Six men had pronounced lordosis, and seven showed the gorilla type of figure, stooped with protruding abdomen.

These defects were by no means confined to weak or sickly men, four of them played this year on the football team, and others showed up well in other forms of athletics.

Thus over 12 per cent. of all men examined had either drooping of one shoulder or actual deviation of the spine more or less severe. This would indicate that young boys with slight curvatures do not "grow out of them," as many are inclined to believe, but that an early, slight, curable curvature tends to become, later on, a permanent deformity.

Irregularities of the circulation were seen in 14 cases; irregular or intermittent pulse after exercise, not bad enough, however, to warrant condemning a man, occurred in nine cases. A soft murmur was heard in the pulmonary area without other symptoms in two cases and two more had a history of frequent epistaxis after exertion.

In five cases there was a strong family history of tubercle on one or both sides, and when the personal resemblance to the parent on the affected side of the family was great, men were strongly advised against violent or prolonged athletics. Men of that class nearly always have such a finely adjusted and willing nervous system that they are much more apt to overdraw their vital capital and lay themselves open, by the after exhaustion, to their besetting disease.

There were several cases of psoriasis and acne, one of boils and anæmia. One man, neurotic, stooped and troubled with cold extremities, was advised regular exercise, but not violent athletics.

A fair sample of a man of this class is J. T——. He resembles his father, who died of phthisis. Other members of his father's family died of the same disease. He has been accustomed to violent exercise. Examination shows a pulse rate of 156 after exercise, no fat, high square shoulders and flat chest, fine thin skin and red cheeks. He is otherwise sound. Capacity 286, expansion 3 inches. This man easily becomes over-trained and is always exhausted after playing. During a game, however, he is one of the best players of football at McGill. He is permitted to play football, but is advised against it and recommended milder forms of exercise. The greatest care has been exercised to curtail in no way a man's personal liberty beyond advice and reason, unless the condition absolutely warrants it.

In the third class (C) the men are referred as unsound and are not permitted to take part in athletic sports, although in many cases recommended to take exercise under supervision.

Here the average pulse rate (88) rises nearly 13 beats above class A; after exercise it rises 15 beats, averaging as high as 150. Expansion falls and capacity is 37 cubic inches less. These figures, although not conclusive, are significant of the predominating weakness of the heart and lungs in men of this class.

Five had valvular disease of the heart, and in another case the diagnosis was doubtful. Seven had fast, weak and irregular heart action after exercise, the pulse in some cases being most difficult, if not impossible, to count correctly.

Three had uneven shoulders in addition to other defects, one had lordosis, while one man, a candidate for football, had an inguinal hernia, and one inflammation of the metatarso-phalangeal joint of four years' standing.

The mere statement of the cases will show the grave dangers into which these young men would unwittingly have run. One could safely say that not one of all the sixteen in this class could, with impunity, play in a football game, where a man has to sustain the shock of weight and momentum often at a disadvantage, when the breath must be held for the lift, and the blood dammed back on the overworked heart, while the thoracic and abdominal walls are strained and tried to the utmost.

Here is a case for illustration: C. D., accustomed to indoor work, resembles father; tuberculosis on paternal side; four years ago he had two hæmorrhages from the lungs. Cold usually goes to the lungs. Suffers from headaches. Thinks "his heart is weak." Pulse, standing, 108, after running 168, weak and fluttering. Muscle tone flabby and degenerate, with fat abundant. Expansion less than two inches, capacity 200. Such a man has no business in athletics.

Cases of valvular disease with good hypertrophy and compensation are advised to take regular exercise, but it is of such a nature as to avoid any prolonged fixation of the thoracic walls or increase of intrathoracic pressure sufficiently to embarrass the free action of the heart or lungs. Thus these men are told to avoid parallel bars, wrestling, heaving of heavy weights, or the horizontal bar, while they can with impunity use the barbells or Indian clubs, and even indulge in a sparring bout, or cycling in moderation.

By keeping these cases under observation for some years, valuable information may be obtained as to the effect of exercise on such conditions. Already the marked improvement in heart action and pulse rate under favourable conditions, extending over a year only, is well illustrated in a case to be mentioned presently.

I will conclude by quoting the essentials of some of the case reports now on fyle, that they may speak for themselves and at least be suggestive of the possibilities of this work, if nothing more.

In class A the results showed principally changes in the muscular development, and one case illustrated beautifully the condition known as "over-training." Last year he was examined when in good condition for athletics. Age 23, weight 159, waist 30·5, chest 34·5 to 37·5, capacity 320. This fall, in weight he had lost 2½ lbs., waist ½ inch; chest 33·7 to 37·3, while his chest mobility showed a difference of 10 inches on the wrong side. He had grown nearly ½ inch, but was highly nervous, with drawn, almost haggard face. Advice was perfect rest for two weeks.

Another, a bicyclist, aged 18, weight 138, increased 3½ lbs. in weight and nearly 1 inch in height. This alone would mean little were it not

that this was a lengthening of the body, a good sign for endurance. Waist increased ½ inch, expansion increased 1 inch, thighs over ½ inch and lung capacity slightly.

To summarize, he is taller from growth of body, not legs; waist bigger from muscular development, not fat; the thighs are bigger. The advice to him is that he will, with his increased strength, be able to ride a machine that is geared higher, *i.e.*, more distance covered by each revolution of the pedal. Another, a football man, pulse last year 78 to 142, this year 64 to 128, capacity increased 16 inches. Advice, "Go on, you're all right." Another pulse rate after exercise fell from 158 to 124 in a bicyclist.

One man was referred to class C last year because his pulse was 80 and 150, but very intermittent. This year he is put in class A, with the figures at 72 and 144, strong and regular; this after a year spent in the open air. He now plays in the scrimmage.

For cases in which corrective exercises are indicated there should be a special hour, and exercise should be prescribed to meet the indications of each case; by no means a simple affair. These prescriptions should be demonstrated to the student and applied with regularity, and measurements and tracings taken from time to time to note the effects. Thus only can reliable deductions be drawn and a system of treatment be worked out. This is being done at the gymnasium now in a very imperfect and partial way, but limited time and opportunity and apparatus forbids a more thorough investigation at present of this field, hitherto almost untouched.

Much remains to be done. Such work, for example, as determining the physical type of man that will succeed in certain feats, with the anatomical and physiological and, I may add, the psychological reasons for such success; the effect of different forms of exercise on the heart and lungs; the best forms of corrective work for lateral curvature of the spine and similar deformities.

These, with many other problems that will at once suggest themselves, still await solution by the only method by which it will ever be reached—careful, patient and prolonged discriminating observation.

Clinic.

CLINICAL LECTURE ON THE SURGICAL TREATMENT OF PERFORATED GASTRIC ULCER.

Delivered at the Montreal General Hospital on the 6th of November, 1895.

By Geo. E. Armstrong, M.D.

Assistant Professor of Clinical Surgery in McGill University; Surgeon to the Montreal General Hospital: Attending Surgeon to the Western Hospital.

The subject of gastric ulcer is more fully treated in medical than in surgical text-books. It is with the complications and sequelæ of gastric ulcer that the surgeon is especially interested. I will not enter into a discussion of the etiology, course and treatment of ordinary gastric ulcer, but I may say that it is found in the stomach and in the duodenum as far down as the point of entrance of the common bile duct. It may be occasionally due to traumatism or corrosive poison, but the opinion seems to be pretty general that probably in the majority of cases it is due to a deficient blood supply to a small area, and that this spot deprived of its blood supply is digested or destroyed by the action of the gastric juice. As a rule when the condition is recognized and submitted to proper treatment the ulcer heals, and unless the process has been very extensive the resulting cicatrix causes no permanent disability. But unfortunately it occasionally happens that serious complications arise that jeopardize the life of the patient. For example, if the ulcerated surface is extensive the stomach may become so contracted and deformed during the healing process that impairment of function results. If the ulcer is situated at the cardiac or pyloric end stenosis may follow and operative interference be required to remove the obstruction and allow food to enter or leave the stomach.

Another alarming complication is hæmorrhage. This is seldom fatal, and only when it continues to recur to such an extent as to threaten life—as evidenced by collapse and hæmatemesis and melæna—would the question of operative interference arise. In two such cases, however, Küster, of Marbourg, has opened the anterior wall of the stomach, cauterized the ulcer and then performed a gastro-enterostomy. Both cases recovered.

A third complication, which unless relieved by surgical measures, is fatal in about 95 p.c. of the cases is perforation of the wall of the

stomach or duodenum, permitting the contents to escape into the general peritoneal cavity, and there lighting up a fatal septic peritonitis.

Although gastric ulcer is more common on the posterior wall of the stomach than on the anterior, perforation occurs more frequently on the anterior wall. The reason for this is that ulcers on the posterior wall more frequently cause adhesions, especially to the pancreas, and thus a perforation into the general peritoneal cavity is avoided. Another reason why perforation is more common on the anterior wall is that the symptoms of a gastric ulcer in this situation are less marked —which means that the ulcer is less readily recognized, and therefore less frequently subjected to rest and proper dietetic treatment. It is very important that you should be able to diagnose a perforation of the stomach when it occurs. In fact the life of the patient depends upon an early diagnosis and prompt closure of the perforation. The symptoms are not many, but they are urgent and characteristic. They have been very clearly detailed to you in the report, which you have just heard read, of this case before you. When an anæmic young woman, with a history of indigestion, is suddenly seized with symptoms of acute peritonitis, you should at once wake up to the fact that you may be dealing with a case of perforating gastric ulcer. This young woman, aged 20, was admitted to the Montreal General Hospital about 6 p.m. on the 9th October, 1895. On October the 8th, about midnight, she had been suddenly seized with intense pain in the epigastric region. She could put the end of her finger on the spot where the severe pain first appeared, and where the greatest tenderness to pressure still remained. During the night the pain spread along the left costal margin and then over the whole abdomen, which had already, 18 hours after the onset of pain, become very much swollen. The pain was of a sharp shooting character, becoming more dull toward morning, but at once rendered acute by any movement of the body. She had vomited several times during the night. Her pulse was 118, of fair quality, rather high tension. Temperature 103° F. Respiration, thoracic, quick and shallow. She gave a history of having been treated in the out-door department of the hospital during the past summer for indigestion. She had suffered from flatulence and vomiting after meals, followed two or three hours later by pain in the epigastrium, which was relieved by taking food.

Dr. Byers, the House Surgeon who admitted her, at once suspected the condition present, and summoned the staff for a consultation. When I saw her she was lying in bed with an anxious expression of countenance. Pulse, temperature and respiration as noted above. On making a physical examination the abdomen was found mode-

rately distended. On asking her where the pain was most severe she put her finger on a point about two inches below the ensiform cartilage and a little to the left of the median line. On palpation, the abdomen was everywhere tender, but moderate pressure could be borne over the centre in the umbilical region, over the hypogastrium on both sides, and over the situation of the appendix, but over the point where pain was first felt the slightest touch caused the patient to cry out. In perforative peritonitis there is always a point of maximum tenderness and that point is over the seat of perforation. In appendicitis it is over the appendix at the so-called McBurney's point, or if the appendix is turned up behind the colon it may be in the right loin. In perforating gastric ulcer it is over the stomach. Pain may be more generalized, but the point of maximum tenderness is always over the seat of perforation and is the most important and reliable guide by which to localize the lesion.

As far as I could judge about half the liver dulness had disappeared. The lower half of the normal area of liver dulness was tympanitic. The presence of a tympanitic note on percussion over the region of the liver is very suggestive of a perforation of some part of the alimentary canal and the escape of gas into the peritoneal cavity.

The urine was high coloured, sp. gr. 1030, acid reaction, no albumen, no sugar, urea grs. xiii. to the ounce.

The history and symptoms rendered the diagnosis of perforated gastric ulcer pretty certainly correct.

The prognosis was that if left alone the girl would certainly die in 24 to 48 hours of toxæmia from septic peritonitis. The indication clearly was to open the abdomen, close the hole in the stomach, and remove so far as possible all matters that had already escaped, together with the serum or sero-pus already formed. And it was important that this should be done at once, before the infection and inflammation of the peritoneum had gone so far that a favourable result would be unattainable. Twenty-two hours had already elapsed since perforation had taken place. Fortunately the matters escaping from a hole in the stomach are not as virulent and irritating as those escaping from the intestine, and I think that this is the reason why peritonitis from an escape of stomach contents is less rapidly fatal than peritonitis caused by escape of intestinal contents, rather than, as Mr. Treves states in his Lettsomian lectures, to a difference in the character of the peritoneum itself in the upper part of the abdomen.

The girl was taken to the operating room at once and I made an incision in the median line between the ensiform cartilage and the umbilicus, as you see by this cicatrix. As soon as the peritoneal

cavity was opened, air and sero-purulent fluid escaped. The stomach was carefully packed around with sterilized gauze to prevent further escape into the peritoneal cavity and the opening in the anterior wall of the stomach readily discovered. It admitted my forefinger easily. The edges of the opening were, I should say, an inch or more thick. The greater part of the thick edge proved to be lymph. Now, one cannot stitch lymph. It will not hold a suture. The suture cuts out as soon as any tension is put on it. I had, therefore, to gently peel off the thick layer of lymph that I might get sound stomach wall to hold the sutures. On removing the lymph, I found that the ulcer had been evidently closed for a time by it, and that escape of stomach contents had occurred only when this reparative material had failed in its object, and that the ulcer was a very large one. When it was drawn out with its edges together the sew line measured 3½ inches. The edges were everted, and the mucous membrane had become adherent to the border of the rent throughout its entire extent. I closed the opening in the manner that you have seen done in wounds of the intestines, that is, first a continuous suture passing through all the coats of the stomach wall. This I believe to be an important part of the suturing. I then inverted the suture line and passed a continuous Lembert suture from one end of the rent to the other. If this is done neatly and carefully, it effects a closure absolutely water tight and air tight. I closed a typhoid perforation in this manner the other day, and, although the patient died about three hours after the closure, Dr. Johnston, at the post-mortem, tested the closure and found it quite impervious to water or air. After the closure was completed I wiped out all the fluids and lymph that could be reached, passed a glass tube surrounded by iodoform gauze down to the suture line, passed another small strip of the same down the calibre of the tube and closed the incision with two rows of sutures, catgut being used for the deep layer and silk-worm gut for the skin. I then made a small opening in the median line, midway between the umbilicus and the symphysis pubis, just large enough to admit a ½ inch glass drainage tube, which I passed down to the bottom of the pelvis. It was well that I did this, otherwise I might have lost my patient, for there escaped through this tube fully 20 ozs. of yellowish sero-purulent fluid. The tubes were removed on the fifth day. The patient has made an easy recovery.

Enemata of peptonized beef tea, with half an ounce of brandy, were given every four hours for seven days, and were well retained. During the first three days nothing was allowed by the mouth except a teaspoonful of water every half hour to allay the thirst. On the

3rd day she was given an ounce of peptonized milk every two hours. This was gradually increased day by day.

On the fifteenth day she was given custard and a softly boiled egg. Then milk toast and arrow-root. At the end of the third week fish and chicken were allowed, and she now takes three pretty good meals daily.

This patient on the left was operated on by my colleague, Dr. Kirkpatrick, about a year ago. She made a perfect recovery and has remained in perfect health ever since. So far as I know these are the only cases of perforated gastric ulcer that have been operated upon in Montreal, and as you see they have both fortunately been successful.

In his Ingleby lecture Barling has reported 37 cases by various operators, with 13 recoveries. Several operations for perforating duodenal ulcer have been reported with, so far as I know, only one recovery.

Closure of a perforated ulcer on the posterior wall of the stomach is more difficult. Probably the better plan would be to approach it through an incision in the anterior wall of the stomach. In that case the Lembert suture would be applied first and the through and through suture afterwards. The opening in the anterior wall of the stomach being closed in the same way that I closed the opening caused by the perforating ulcer.

Clinical Reports.

A CASE OF MALIGNANT INTRABRONCHIAL GROWTH,

Associated with a Misleading Train of Symptoms.

By J. G. Adami, M.A., M.D.

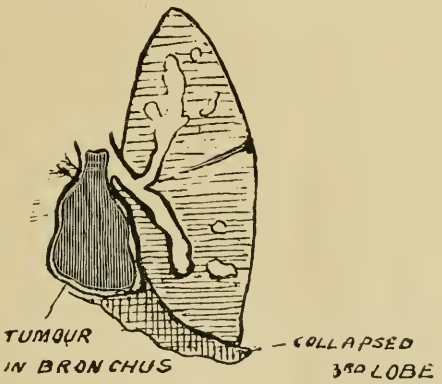
Professor of Pathology, McGill University, Montreal.

I am indebted to Dr. A. G. Nicholls for the clinical notes of this case.

The patient, a woman of 50, died four hours after admission into Dr. Stewart's ward, and thus there was no possibility of making full observations upon her condition *intra vitam*. She had, however, been twice to the out-patient department of the hospital. A year ago last summer she presented herself at the hospital with what was considered to be commencing tuberculosis of the right apex. She did not reappear again until February 21, 1895, then the right apex was found dull in front, with blowing breathing and numerous moist rales. Behind over the upper half of the right lobe there was a similar condition. In the lower half of the lung there was diminished resonance and feeble breathing. Since then the patient had not returned to the out-door department. Her sister stated, however, that in the meantime she had had several attacks of hæmorrhage from the lungs. It will thus be seen that the history dated back for several months and that there was a curiously suspicious tubercular symptomatology, with cough, shortness of breath and hæmoptysis. On admission the patient was apparently very ill, urgent symptoms having come on, at the most two days before admission, with shivering feeling, but no distinct rigor; severe headaches and much coughing. She was a heavily-built woman, somewhat anæmic, with cyanosis of the lips, face and finger tips, which were distinctly clubbed. The respirations were short and hurried, 44 per minute. There was intense dyspnœa, over the right side expansion was very much diminished, the whole of the right side was dull in front and behind, with slight resonance only behind and below. The left lung was hyperresonant. On auscultation the breath sounds on the right side were cavernous in character in front and over the upper half of the lung behind. They were tubular in the axilla and diminished below. The expectoration was thick, viscid, yellowish and muco-purulent. The breath sounds on the left side were exaggerated. The expirations were prolonged.

The pulse was 120, of moderate tension and regular. There were no murmurs, neither was the second sound exaggerated. The condition of the other parts, determined clinically, does not call for remark. With such a history and with such symptoms there is little wonder that in this case, in spite of the stout build of the patient, the provisional diagnosis was made of pulmonary phthisis, with cavitation of the apex and hæmoptysis, and with generalized tuberculosis of the right lung. The condition of the left lung was evidently that of compensatory emphysema. That the patient was moribund is, I think, an ample excuse for failure to confirm the diagnosis by examination of the sputam.

At the autopsy, however, this most reasonable diagnosis was found to be completely astray, save that the left lung was very voluminous and that there was present a generalized compensatory emphysema. This, however, was not all that was present; at the edge of the lower



Diagramatic representation of the relationship of the Intrabronchial growth to the Bronchi.

lobe and along the the diaphragmatic surface were areas of lobular consolidation relatively firm and of greyish-red colour. There was in addition a muco-purulent bronchitis, evidently, from the presence of slight reddening and of red corpuscles in the contents, of an acute character. Cultures from these areas of consolidation gave the diplococcus of pneumonia. Here, then, the very position of the acute inflammation in this left lung spreading immediately over the diaphragm was such that almost inevitably in the examination of the moribund patient it would fail to be discovered. There was no apical tuberculosis, nor were there any signs of tuberculosis elsewhere throughout this lung. Turning now to the right lung, this presented a condition of very great interest. Upon opening the thorax the organ was found very full and firm, firmer than hepatized lung; it was surrounded

generally by very firm adhesions, so firm that laterally and posteriorly the parietal pleura had to be removed at the same time. The organ weighed 1025 grms. This fullness affected the upper and middle lobes only. These two occupied almost the whole of the pleural cavity, the lower lobe was collapsed and adherent to the diaphragm. While the thickening of the visceral pleura was great at the apex, there was no sign there of puckering or of obsolescent tubercles.

On section the organ cut very firmly, it was of grey colour with distinct enlarged fibroid bands. The condition of the two upper lobes was that of chronic interstitial pneumonia. They presented further most marked generalised bronchiectasis, affecting both bronchi and bronchioles. As above remarked, the dilatation was generalised and not saccular to any entent. These dilated passages contained fairly fluid muco-pus of salmon colour, not fœtid. Their walls were much injected.

Upon dissecting the main bronchus of the lung a very uncommon condition was discovered; at the point of division into the bronchi for the three lobes a dirty grey rounded mass with ulcerous extremity was seen, almost completely filling the lumen. Upon further dissection this mass was found to be a cylindrical truncated projection or outgrowth along the main bronchus, 16 mm. in diameter, by 16 mm. long, from a large soft, flesh-coloured tumour, lying in a smooth walled sac in direct communication with the main bronchus, which sac, from its anatomical relations, could be none other than the bronchus of the collapsed lower lobe. With expansion, the cartilages had become atrophied and unrecognizable to the touch.

While fibroid phthisis or interstitial pneumonia is in itself a most frequent cause of bronchiectasis, it was clear from the arrangement of the parts that the outgrowth of the tumour into the main bronchus had acted as a ball valve, permitting entrance of air into the first and second lobe during inspiration, and occluding the bronchus during expiration. Then here there was an additional mechanism leading to dilation of the bronchi.

While the tumour, which was 7.5 cm. long by 5.3 cm. across, was in the main free in the dilated bronchus, it was firmly adherent below and to the inner side. The peri-bronchial glands lying to the front of the main bronchus and growths were singularly large, the largest being 4x3 x3 cm., and having in its centre what appeared to be a secondary growth. No other secondary growths were recognizable elsewhere.

Microscopic examination of the lung showed a most interesting condition of interstitial pneumonia, with numerous large cells within the alveoli, which varied in size and appearance from that of the ordinary

so-called "dust cell" to large polynuclear pigmented cells. I have never seen so large a number of this form of giant cells. The tumour, on the other hand, was found to be of a type presenting great difficulty in diagnosis; while possessing an alveolar arrangement and an appearance under the microscope remarkably like carcinoma, further study reveals a suspiciously sarcomatous character in the part of many of the cells filling the aveoli. Following Orth and the majority of recent observers, it may be well to describe it as a sarroma of the bronchial wall—although almost as many authorities have called such tumours cancerous. I may later revert to the finer details of the growth.

This specimen then, is interesting, not only from the singular position of the primary tumours, but also from the clinical symptoms to which the growth gave rise. The apparent cavitation, it is seen, was due to the very extensive bronchiectasis. The hæmorrhage and hæmoptysis to the ulceration of the free end of the growing tumour, the dullness over the lung in general, not to any general tuberculous extension, for there was no tuberculosis anywhere, but to a condition of general dense pleural adhesions with associated interstitial pneumonia.

STRANGULATED HERNIA—OPERATION—RECOVERY.

By C. L. Cotton, M.D., Cowansville, P.Q.

I was called to see Mrs. S., æt. 50, on the morning of October 25th. She stated that she had first noticed a hernia about two years ago, that she had tried a number of trusses but had not been able to wear any of them, probably from not being properly fitted. At various times the hernia had caused her much pain, and once or twice vomiting, but she had always been able to reduce it. I found a left oblique inguinal hernia of moderate size and very tense. On the evening of the 23rd October, about forty hours previous to my visit, the hernia came down after some extra exertion, and she had not been able to reduce it. Within a few hours vomiting began and continued until I saw her. After finding that she could not reduce it, she took a variety of strong purgative medicines. I found her vomiting continuously a foul smelling stercoraceous matter, which, from her description, had become so during the preceding night. The hernia was very tense but not particularly tender. She complained of some tenderness about the umbilicus.

Finding that I could not make any impression on it by taxis, I sent for assistance and prepared her for operation. When she was completely under chloroform, I again attempted to reduce the hernia, but failing, I immediately proceeded to cut down upon the sac. Being suspicious of the condition of the bowel from the length of time it had been strangulated and its very tense condition, I immediately opened the sac. The gut was of a dark purple colour but glistening and apparently possessed vitality. The sac also contained a large piece of omentum. After relieving the constriction, both bowel and omentum were easily returned. I used a few strands of silk for drainage, and dressed the wound with boracic acid and a pad of gauze. The vomiting ceased immediately after the operation.

The patient passed a somewhat restless night, and the following day there was a slight elevation of temperature—99.4°. The abdominal tenderness had disappeared. From this time onward the patient made an uninterrupted recovery. There was no rise of temperature. The bowels moved naturally on the morning of the sixth day, and on the afternoon of the same day I removed the dressing and found the wound thoroughly united, except where the silk drainage had been. I removed the sutures and the silk. Two days later the entire wound was firmly closed. On the fourteenth day I fitted her with a truss and allowed her to get up.

CARDIA-DEXTRA.

By G. Gordon Campbell, M.D.

Demonstrator in Medicine, McGill University; Assistant Physician, Montreal General Hospital.

J. C., aged 17, was admitted to the Montreal General Hospital, under Dr. Shepherd, on May 6th, 1889, suffering with scrofuloderma of the right cheek. The patient has always been healthy and has never had any serious illness, with the exception of an injury to the chest occurring at the age of four, in which he believes the sternum was fractured, and attributes to this cause a deformity of the lower part of the right side of the chest. His father, who was in the hospital at the time, corroborates his statement.

The patient is about 5 feet 9 inches in height, fairly well built, somewhat anæmic, with blue eyes and clear, smooth skin of the ordinary scrofulous type.

Physical examination reveals a very long and narrow chest with a very deep dip of the lower ribs and a very acute xiphoid angle. Over a space about two and a half inches square involving the fourth, fifth and sixth ribs at their junction with the sternum on the right side is a slight bulging of the chest wall. The nipple is situated on the fourth rib and the xiphoid angle is opposite the fifth rib. On percussing the chest there is an area of absolute dulness to the right of the sternum. This is bounded above by a line drawn from the centre of the sternum opposite the fourth rib to the right, along the upper border of that rib for three and a half inches, thence vertically downwards to the sixth rib in the nipple line, thence to the seventh in the axillary line. The left border extends vertically downwards just outside the median line to the fifth rib (left), whose course is followed for a couple of inches, then taking a sharp curve to the right again it joins the lower limit formed by a line an inch below and following the direction of the lower margin of the ribs. The left side gives the normal lung note from the apex to the fifth rib in the nipple line, where it becomes tympanitic in character. Normal breathing is heard all over the lungs, except over the dull area described.

On examining the heart, inspection shows the apex beat on the right side one and a half inches below and half an inch to the sternal side of the nipple. On palpation the impulse is felt most strongly at

this point, but can be made out all over both sides of the chest below the fourth rib. On auscultating, the first sound is heard best at the point of impulse and is accompanied by a soft blowing murmur, systolic in rhythm, heard over the dull area and increased after exertion and by the patient's assuming the upright position. The second sound is heard loudest just above and inside the point of greatest impulse. It is heard at the junction of the second rib with the sternum on both sides, but louder on the right. It is also heard at the junction of the third on the right side, but not on the left. Pulse is 72, small and shabby. The liver dulness, as described before, measures vertically five and a half inches in the nipple line. The splenic dulness extends for a distance of three and three-quarter inches in the mid-axillary line corresponding to the ninth, tenth and eleventh ribs.

TRANSPOSITION OF VISCERA.[1]

By T. P. Shaw, M.D.,

Assistant Demonstrator of Clinical Chemistry, McGill University.

M. G., aged 23 years, came under my notice during the summer of 1895.

During a conversation concerning a slight ailment, he casually remarked that he occasionally felt a strong pulsation on the right side, which he believed to be his heart. My curiosity being aroused, I asked permission to make a physical examination. This being readily granted, when the man had removed his clothing an area of visible pulsation was seen in the right fifth interspace inside of the mid-clavicular line. There was no visible pulsation on the left side. On palpation over this pulsating area, the sensation conveyed was distinctly that of the apex-beat of the heart. Percussion showed the heart to be of normal size, the area of dulness being on the right instead of on the left side. On auscultation the heart sounds seemed to be of normal pitch and quality. As far as could be ascertained the aortic and pulmonary sounds were transposed, that is the aortic was heard loudest at the second costal cartilage on the left side, and the pulmonary at the second interspace on the right.

The liver dulness was also transposed, a clear percussion note being obtained over the normal liver area on the right. On the left side the dull note commenced at the upper border of the sixth rib in the mid-clavicular line and extended downwards 11 c.m. In the mid-axillary line it began at the upper border of the eighth rib and changed to a clear note 10 c.m. below. The posterior dulness began at the lower border of the eleventh rib.

There is a tympanitic resonance on the right side corresponding to the area of the stomach beginning at the upper border of the eighth rib in the mid-clavicular line.

The spleen could not be palpated on the right side, but there was an area of slight dulness between the ninth and eleventh ribs on the right side in the mid-axillary line.

I might mention also that the right testicle hung lower than the left.

It would seem from this examination, which I have made as carefully as possible, that this is a case of complete transposition of viscera.

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[1] Read before the Montreal Medico-Chirurgical Society, Nov. 15, 1895.

Ephemerides, 1895.

By William Osler, M.D.

I.—Introduction.

With the kind consent of the editors I propose to occupy a few pages of the Journal each month with notes and comments on some of the more interesting cases which came before me in the daily round of consultation work last year.

In looking over my notes I find certain cases in which the visit has been of vital moment to the patient, usually in making a diagnosis, upon which successful treatment directly depended, as in myxœdema or pernicious anæmia. In a very much larger number there has been some important suggestion to make, either in prognosis or in the management of the case; while in others the chief value of the consultation has been in a reasonable talk with the patient about his condition, with assurance that there was nothing serious, and general advice as to mode of life and diet. Coleridge somewhere remarks that when a man is vaguely ill the talk of a doctor about the nature of his malady tones him down and consoles. It is very true, and to tone down and console are important functions of professional advisers.

There is a group of cases in which the physician seeks counsel on account of some special obscurity in the disease, an obscurity which may not be lightened by the consultant after the most careful scrutiny. Not to receive the positive information they seek is often a great disappointment to both doctor and patient, but we must remember that there are—changing slightly Sir Thomas Browne's phraseology—cases indissoluble in physic, and a diagnosis is not possible in every instance. Frankly to confess ignorance is often wiser than to beat about the bush with a hypothetical diagnosis.

A consultant's life is not without unpleasant features, chief among which is the passing of judgment on the unhappy incurables—on the cancerous, ataxics, and paralytics, who wander from one city to another. Few are able to receive the balm of truth, but now and again one meets with a cheery, brave fellow, who insists upon a plain, unvarnished statement of his prospects. Still more distressing are the instances of hopeless illness in which, usually for the friends' sake, the entire "faculty" is summoned. Can anything be more doleful

than a procession of four or five doctors into the sick man's room ? Who does not appreciate Matthew Arnold's wish ?—

"Nor bring to see me cease to live
Some doctor full of phrase and fame,
To shake his sapient head, and give
The ill he cannot cure a name."

How often under such circumstances has the bitterness of the last line recurred to me! Oliver Wendell Holmes, in the Memorial History of Boston, speaking of two of the leading physicians of the early part of the century, says, "I used often to hear him (Dr. Danforth) spoken of as being called in 'consultation,' as the extreme unction of the healing art is called. If 'old Dr. Danfurt' or 'old Dr. Jeffers' were seen entering a sick man's door it was very likely to mean nothing more nor less than a *nunc dimittis*." 'Tis not pleasant to think that *pallida mors* so often treads upon our heels.

There is nothing new under the sun, and the common practice of friends who, wishing to leave nothing undone, call in a batch of consultants is by no means modern. In the delightful lectures on *Latin Poetry*, delivered in 1893 at the Johns Hopkins University, Professor Tyrrell, of Dublin, quoted a long passage from the "Satyricon" of Petronius. The friends were discussing poor Chrysanthus, who had just "slipped his wind." Seleucus says, "and it is not as if he hadn't tried the fasting cure. For five days neither bit nor sup passed his lips, and yet he's gone. Too many doctors did for him, or else it was to be. A doctor's really no use except to feel you did the right thing." The last sentence might have come from George Eliot or George Meredith.

The value of careful note-taking is recognized by most consultants. I know, however, several men in large practice who have discarded it as altogether too onerous, and as taking up much more time than it is worth. The material which an active consultant may collect in a long life is enormous. The late Dr. Austin Flint's notes cover 16,922 folio pages, all written with his own hand. The late Dr. Howard constantly lamented that the leisure never came in which he could work over the clinical records which he had so faithfully kept for so many years.

A case cannot be satisfactorily examined in less than half an hour, unless the notes have been taken previously by an assistant, a plan which consultants in very large practice might adopt more widely. A sick man likes to have plenty of time spent over him, and he gets no satisfaction in a hurried, ten or twelve minutes examination. If one never saw a patient the second time, notes might be superfluous, but

can anything be more embarrassing in a return visit than to have forgotten name, face, malady, everything? At such a moment well indexed notes are worth their weight in gold. Last year I had a notable illustration of the value of memoranda, however slight. Dr. Bray, of Chatham, brought a patient, whom from certain peculiarities I remembered at once, though nearly twelve years had elapsed since I had seen him. In 1883 he had, at Dr. Bray's suggestion, consulted me in Montreal. Fortunately I was able to lay my hands at once on the notes of the case. The point of interest in 1883 was whether the impotence was an early tabetic symptom, an opinion favoured by Dr. Jewell, of Chicago, and by a New York specialist whose name I do not remember. In the twelve years the patient's condition had remained unchanged, and many of the symptoms which he thought were of recent origin had been present at his first visit. Neither the patient nor Dr. Bray had any recollection of a previous consultation with me, of the truth of which only my notes convinced them

The histories may be taken very conveniently on the cards of the Boston Library Bureau, and filed away alphabetically. I have had much comfort since the adoption of this plan. It is a great saving of time and labour to dictate the condition of the patient to a stenographine, who can (if the arrangement of the consulting rooms is not convenient) be secluded behind a screen. She can afterwards add the notes to the card on which the history has been taken.

For several years I have adopted the plan of dictating at odd times abstracts of the histories of special cases and filing them in order ready for publication. In this way, when noting carefully during the session of 1892-93 all the cases of abdominal tumour which came before me for diagnosis, I had, in October, 1893, when I began the series of lectures which have been published, all the cases type-written and ready. It has always been a regret to me that I had not learned stenography, which Dr. Gowers has found so serviceable, and the use of which in medical work he has advocated so warmly.

II.—Heberden's Nodes.

I thought that the nature of Heberden's nodes had been settled and it was a great surprise to find in that delightful work, *The Senile Heart*, by Dr. Balfour, statements entirely at variance with what I had been taught, and have taught for many years.

Heberden's original description is worth quoting: "What are those little hard knobs, about the size of a small pea, which are frequently seen upon the fingers, particularly a little below the top near the joint? They have no connection with gout, being found in

persons who never had it ; they continue through life ; and being hardly ever attended with pain, or disposed to become sores, are rather unsightly than inconvenient, though they must be some little hindrance to the free use of the fingers."

All recent authors speak of these *nodi digitorum* as identical with the bony outgrowths of arthritis deformans. Charcot, who gives a very full description of them, states, as a result of numerous observations at the Salpètrière, that, (as in the other forms of chronic arthritis) the cartilages undergo a velvety change, and may even disappear, and leave an eburnating surface. The nodes are exaggerations of the little pisiform nodules which exist normally on either side of the lower extremity of the second phalanges. He expressly states that they are composed of layers of new bone ; that there exists no trace of urate of soda, either in the cartilages or in the neighbourhood of the joints, or in the soft parts (*Œuvres Complètes*, J. M. Charcot, VII. p. 255). In Figures 5 and 6 of Plate 1., he gives good illustrations of the nodes.

Balfour expresses an entirely different view. " For diagnosis, however, and certainly for treatment, we have to distinguish between Heberden's *knobs* and Haygarth's *nodosities*. The *knobs* are extravascular deposits in the neighbourhood of the smaller joints, chiefly of the fingers, but they may be found about the toes also, and appear as gouty pearls on the cartilage of the ear. They begin like small peas, or at least are scarcely noticed till they are about this size, but they sometimes attain a considerable size, and produce great and irregular deformity of the hands or other parts affected ; they are composed of urate of soda, and are popularly know as chalkstones. The *nodosities*, on the other hand, are associated with rheumatoid arthritis, and not with gout ; they are really 'exostotic growths, from the margins of the articular surfaces, as well as from the periosteum and bone in the neighbourhood of the diseased joints.'" Either the distinguished Edinburgh physician has been napping, or there are many rash statements on the subject in the text-books.

In an immense majority of all cases these little nodules have surely no connection with gout. They are extremely common in this country, in which gouty arthritis is very rare. Charcot states that in a few instances they do occur with uratic deposits (tophi). I have personally never met with an instance of the kind, and should be glad to hear of any observations of the existence of Heberden's nodes with tophi.

Of six private patients with Heberden's nodes seen last year not one had had gout. Two of the patients, a woman aged 50 and a man

aged 70, had been "high livers," and the former had an eczematous rash. Two of the cases were of special interest. In one, a woman aged 30, the trouble began in her 25th year and involved the index, little and middle fingers of both hands; the ring finger was spared. The *nodi* were very pronounced. The patient had no rheumatic history and had been very healthy. The other case, Mrs. H., aged 73, illustrates the deforming character of this local arthritis in some instances. They developed gradually many years ago with a little redness and soreness. Only the terminal phalanges of the fingers were involved. Other joints have not been affected. The thumbs were also involved. In three of the fingers anchylosis of the terminal joints had occurred, and in four of the fingers the terminal phalanx was strongly everted to the ulnar side. Only one of these cases consulted me on account of the nodes. The rarity of extension of the arthritis to other joints in these cases is notorious.

RETROSPECT
OF
CURRENT LITERATURE.

Medicine.

Gout.

KLEMPERER, G. "Zur Pathologie und Therapie der Gicht."—*Deutsche Medicinische Wochenschrift*, October 3, 1895.

Among the old theories concerning disease which are being assailed as a result of recent experimental observations, those concerning the conditions of the blood and the urine in gout are not excepted. According to Garrod, whose views Klemperer briefly restates, the condition consists in an increased formation of uric acid and a diminished excretion of the same; Garrod is said to have clearly made a demonstration of each factor.

In his views on this subject Ebstein follows pretty closely the teaching of Garrod, and adds that the blood, rich in uric acid, irritates the tissues, producing necrotic areas wherein the crystals of this substance are deposited.

Von Noorden is another authority quoted by Klemperer. He fails to accord with Garrod concerning the increased quantity of uric acid in the blood as well as the lessened quantity in the urine, and finally concludes that the disease is quite independent of any such blood condition, and formulates a theory that some "ferment" produces a "necrotic area," and on this area the uric acid is formed. Placing these views side by side, and remembering that each has strong advocates, we see at once the confusion of the subject, and in the light of recent chemical research, perhaps it may be said that the finding of Garrod fails in very many instances to be verified.

Klemperer's experimental observations lead him to accept the view that the blood is richer in uric acid, but he does not accord with the views of diminished excretion in the urine, or, in other words, uric acid retention, except in cases where the kidney is found diseased. That the crystallization of uric acid in the tissues is dependent alone upon its excess in the blood seems very doubtful, since a greater

amount is found in the blood under other circumstances without the gouty manifestation, and further it has been shown that the blood of gout may dissolve more uric acid. Perhaps there do exist areas of "*primary necrosis*," and between them and the uric acid the chemical affinity is greater than between the blood serum and the uric acid, and hence crystallization occurs at these points.

The theory that the diminished alkalinity of the blood accounts for the deposition of the crystals above referred to as well as for the attack of gout is not supported. On the other hand he fails to demonstrate it.

The author is of the opinion that there is in the blood a gouty principle or element not yet determined, and that the influence of alcohol and lead in the system is favourable to the action of this principle in the necrotic areas already mentioned.

Notwithstanding the setting forth of some new views concerning the pathology of gout, the writer recommends time-honoured measures in the treatment of this disease, and regards as useless the administration of the drugs recently introduced for aiding in the solution of uric acid in the circulating blood.

The indication for treatment is the diminution of the gouty principle or element, and two ways are suggested: 1. Oxidation; 2. Excretion.

To carry out this indication the terms here used clearly point to the means necessary.

Increased and Diminished Blood Coagulability.

Wright, A. E. "Methods of increasing and decreasing the coagulability of the blood."—*The British Medical Journal*, July 14, 1894.

Prof. Wright's plea for the remarks offered in this article, is that they may serve as contributions to the building up of the newer and better system of therapeutics.

For several years past the author has given special attention to the subject of the blood in health and disease, and his contributions from time to time have been well received and highly thought of, not only in the English and American profession, but also by the German teachers.

The three classes of cases in which an increased coagulability of the blood is desirable are those of hæmophilia, aneurysm and hæmorrhage of whatever kind. Besides referring to the use of lime salts to favour this end, indications which he discussed in 1891, and results of which, in a series of cases so treated, he summarized in this article, he discusses the effects of the increase in the blood of carbonic acid gas produced by whatever means.

The lime salt used is chloride of calcium, administered twice daily in doses varying from 5 grs. to 30 grs. First the results arrived at in cases of hæmophiliac families after observations made on members of four such, go to show that calcium chloride does increase the coagulability, shortening the time for this process in many cases by one-third.

What is of more practical moment, however, is the observation which Prof. Wright has made, viz., that even in cases in which increase of coagulability was not demonstrable, hæmorrhage has been arrested by the internal use of the agent under discussion. He refers to epistaxis, hæmoptysis and hæmophiliac menorrhagia. By actual experiment, the author has also shown that the continued administration of large doses of calcium chloride is not effectual in keeping up a permanent condition of increased coagulability, but that after such a condition is maintained for 12 to 16 days, the tendency to coagulate may decrease.

The second agent increasing the coagulability of the blood with which Prof. Wright has experimented, and also applied as a therapeutic measure, is carbonic acid gas. He claims for it also good results commending its use in chosen cases.

The discussion of methods by which blood coagulability can be diminished, forms the remaining part of this suggestive paper. Many methods open to the physiologist are not applicable to intra-vascular blood. One, however, which seems upon a reasonable basis, is that of operating upon the lime salts of the blood, rendering them inert or unavailable for coagulative purposes. He used tartrates and citrates without any manifest changes. Turning to the use of the acids of these salts, Prof. Wright was successful, without exception, in diminishing the coagulability. At this point the author touches with suggestive emphasis upon the use of vegetable juice in scurvy, and in all diseases with hæmorrhagic tendency, believing that such juices containing citric and other organic acids are prejudicial to such disorders. The author further suggests the possibility that urticarious œdemas occurring during active ossification ascribed to eating of unripe fruits rich in vegetable acids, may be due to the diminution in coagulability then produced.

Two other methods of influencing this process may be mentioned, both of which are followed by a diminution in the tendency to coagulate due to change in the gases of the blood. They are : (1,) Rapid respiratory movements ; and (2.) the taking of alcoholic drinks.

W. F. Hamilton.

Surgery.

Glycerin Poisoning.

SCHELLENBERG. "Glycerin intoxication after injections of iodoform and glycerin."—*Annals of Surgery*, July, 1895.

Since 1886, when Husemann found glycerin to have a poisonous action on frogs, we have had increasing evidence of its toxic action. The symptoms vary with the amount of the dose, but in general they consist of frequent pulse, rise of temperature, paralysis of the muscles, congestion of the kidneys and hæmoglobinuria. Most of the cases reported have been caused by injecting glycerin into the womb to bring on labour.

The author has observed twenty-one cases of glycerin poisoning in children in whom iodoform and glycerin had been injected for tubercular disease. The cases can be divided into the following groups according to their clinical symptoms:

(1.) *Mild Cases.*—Several hours after the injection a slight rise of temperature occurs, the pulse becomes rapid, and the patients have a little pain at the site of the puncture. The urine is high coloured, containing a little hæmoglobin. No blood cells, casts, or renal epithelium present. There is a little albuminuria, which continues longer than the hæmoglobinuria. After about twenty-four hours the symptoms disappear and the urine returns to normal.

(2.) *Severe Cases.*—The temperature and pulse are more affected than in the previous cases. The patients have a peculiar pale, sallow complexion, and present nervous symptoms which make one think of meningitis. The urine is of a dark brown colour and deposits a copious dark sediment in which are found renal epithelium casts covered with coloured granules and detritus. The hæmoglobinuria disappears after fiftysix hours or before. There are blood cells present.

(3.) *Fatal Cases.*—One case of this kind was observed. The symptoms were similar to those of the previous group. The patient went into collapse soon after the injection and died on the third day. The autopsy showed acute parenchymatous nephritis and œdema of the meninges. The kidneys were filled with hæmoglobin.

Undoubtedly the iodoform produced or augmented some of the symptoms in the severe cases, but they were not looked upon as cases of iodoform poisoning, as the kidneys were the organs most affected, and iodoform produces no kidney lesion. Moreover, iodine could not be detected in the urine in some of the mild cases, and when it was present it usually appeared some time after the hæmoglobinuria.

It is not improbable that the acute nephritis caused by the glycerin prevents the excretion of the iodoform and thus augments its toxic effects. The conclusions reached are as follows:

(1.) The danger of glycerin poisoning increases with the quantity of the drug, the tissue, and pressure. Children are poisoned by relatively smaller doses than adults.

(2.) A dose of ten cubic centimetres in children and twenty cubic centimetres in adults is almost always well borne.

(3.) Poisoning is easily produced by parenchymatous injections.

(4.) In cold abscesses with a pyogenic membrane three or four times as much can be injected as is permissible in other parts.

(5.) Fresh wounds and large joints are especially liable to absorb the drug.

It has been proposed to give up the use of glycerin, substituting olive oil for it, but the therapeutic effect of that mixture has been found much inferior to iodoform and glycerin.

Ligature of the Spermatic Vessels.

GRIFFITHS. "The effects upon the testis of ligature of the spermatic artery, spermatic veins, and of both artery and veins."—*The Journal of Anatomy and Physiology*, October, 1895.

In connection with the evidence now being brought forward in medical journals, tending to prove that removal of the testicles is, in nearly all instances, followed by a material lessening in size of the prostate, it may be interesting to know that an investigation was undertaken with a view of determining the structural changes that supervene in the testis of an animal after ligation of (1) the spermatic artery, of (2) the spermatic veins, and (3) of both the artery and veins.

In the dog the vascular arrangement of the testis is the same as that in man. The animals used were healthy, as far as could be judged, both the vascular arrangement and the testis being normal in each case. Some of the experiments were performed on full-grown animals and some on puppies.

It is found that when the spermatic artery is tied in the groin there occurs, as a rule, diminution in the size of the body of the testis. Two or three days after the ligation of this artery the body of the testis is obviously diminished in size, and it is found softer and of a bluish colour, presumably from sluggishness of its venous circulation, due to the loss of the *vis a tergo* from occlusion of the artery. The epididymis becomes somewhat, though not proportionately, diminished from contraction of its tubules, due to want of seminal secretion to distend them. No inflammation of the tunica vaginalis is produced.

Ligation of the spermatic veins in a full-grown dog leads to great swelling and congestion of the body of the testis, which is accompanied by œdema and enlargement of the veins in the scrotum. This is truly a hæmorrhagic infarction of the testis, and in it the epithelial cells of the tubules undergo necrosis, in which they are transformed into a glassy homogeneous substance, and the intertubular connective tissue becomes greatly infiltrated with coagulated fibrin and extravasated blood, the latter having found its way into the interior of many of the altered seminal tubules. This is in all probability followed by transformation of the organ, more or less completely, into dense fibrous connective tissue, in which remains of the once tubular structure of the gland may be seen as solid rods of fibrous tissue traversing its substance.

Ligation of the spermatic artery and veins is in puppies followed by great swelling from congestion and extravasation of blood in the body of the testis, which gradually subsides, and the body of the testis decreases until it becomes very small. The epididymis remains moreor less normal, and when the body of the testis has reached its ultimate size the epididymis is large and much out of proportion to it. The body of the testis becomes converted into a small, firm, almost fibrous lump, which retains its original shape ; but the epididymis is large, and during the period of growth this testis does not keep pace with its fellow of the opposite side, in which the parts are normal.

The following are the general conclusions :

1. Ligation of the spermatic artery in full-grown dogs leads, within a few days, to great diminution in the bulk of the testis, caused by rapid destruction from degenerative changes in the seminal tubules ; but after a time the remaining tubules may recover to such a degree as to be again capable of producing spermatozoa in the usual way.

2. Ligation of all the spermatic veins leads to great swelling, from enlargement of the veins and extravasation of blood into the intertubular connective tissue and to necrosis of the epithelial cells in the seminal tubules. This condition would ultimately cause almost complete disappearance of the seminal tubules and atrophy of the gland.

3. Ligation of the spermatic artery and veins in puppies leads to great swelling of the testis, followed by gradual diminution and atrophy of the seminal tubules, and to atrophy of the organ altogether.

4. Ligation of the spermatic artery and veins in full-grown dogs may lead, according to conditions not yet known, to (1) sloughing of the testis, (2) complete atrophy, and (3) temporary fatty degeneration of spermatogenetic cells in the seminal tubules, which may be followed by complete recovery.

Operations on the Stomach.

MIKULICZ. "Bericht über 103 operationen am Magen."—*Archiv. für Klinische Chirurgie.*

In a paper read before the German Surgical Association in Berlin on the 18th of April, 1895, Dr. Mikulicz gave a very interesting and detailed report of 103 operations performed by him on the stomach, between October, 1882, and the end of March, 1895. Dr. Mikulicz operated himself in 81 cases and his assistant in 22 cases. The results are far ahead of any other series of similar cases that have been published.

At the Berlin Congress in 1890 Billroth reported 69 stomach operations, gastrectomies and gastro-enterostomies, with a mortality of 47¾ per cent. In the 103 operations reported by Dr. Mikulicz the mortality was reduced to 23½ per cent., or about half the mortality reported by Billroth only five years before.

In the first 10 years he did 35 stomach operations and 13 died, or a mortality of 37 per cent. In the second period of 2½ years he did 68 operations, with 11 deaths, or a mortality of 16 per cent.

The following table gives a very concise and instructive view of the work done:

	Total.	Recovered.	Died.
Gastrostomy—			
For non-malignant stricture of the œsophagus (9 cases) and some nervous ailment of the cardia (1 case)	10	10	0
For carcinoma of œsophagus or cardiac end of the stomach.	34	28	6
	44	38	6
Pylorectomy—			
For ulceration	2	2	0
For carcinoma	18	13	5
	20	15	5
Gastro-enterostomy—			
For non-malignant pyloric stenosis	1	1	0
For pyloric stenosis of doubtful character	1	1	0
For gall-stone wedged into duodenum	1	1	0
For duodenal hæmorrhage due to aneurism of hepatic artery	1	0	1
For carcinoma of pylorus	22	16	6
	26	19	7
Pyloroplasty—			
For cicatritial stenosis of pylorus	5	3	2
For stenosis with ulceration and hæmorrhage	1	0	1
	6	3	3
Gastrectomy and Gastrotomy—			
For an eroding ulcer	1	1	0
For ulcer with hæmorrhage	3	1	2
For ulcer with perforation	1	0	1
For obstruction of the pylorus by a gall-stone	1	1	0
	6	3	3
Operation for compression of the pylorus by a gall-stone.	1	1	0
	103	79	21

Collapse, pneumonia and inanition were the chief causes of death. The average duration of life after gastostomy for cancer of the œsophagus was four and a half to five months.

Dr. Mikulicz thinks that while it cannot be said that life is greatly prolonged by this operation, yet it is a merciful operation, because it saves the patient from that most painful death, death from slow starvation, and if it could not be said that the operation prolonged life a day, yet he would still recommend it from a purely humanitarian point of view.

The average duration of life after gastro-enterostomy for cancer of the pylorus was nine and a half months and, after pylorectomy sixteen and a quarter months.

Pylorectomy is recommended when the growth can all be removed and when there is no surrounding infiltration or lymphatic infection.

Dr. Mikulicz thinks that there is very little future for the so-called total extirpation of the cancerous stomach.

The association of an operating surgeon with the physician in attendance upon these cases is strongly urged.

G. E. Armstrong.

Midwifery and Diseases of Women.

Treatment of Eclampsia Gravidarum.

Zweifel. " Zur Behandlung der Eklampsie. Bericht über 129 hier beobachtete Fälle."—*Centralblatt für Gynäkologie.* No. 46, 47, 48, November, 1895.

Since the memorable discussion on the treatment of eclampsia which took place before the Berlin Obstetrical and Gynecological Society in January, 1892, when Dührssen so powerfully advocated the superiority of rapid delivery by operative measures over the usual expectant plan of treatment, considerable attention has been directed to this subject, and several series of cases have been reported which tend to support Dührssen's views, On that occasion Dührssen held that two questions must be answered before a rational basis for treatment can be obtained : (1.) Does eclampsia cease with the completion of labour ? and (2.) does operation render the prognosis worse ? In answer to the first question he cited the statistics of Lantos and Löhlein which show that eclampsia ceases after the conclusion of labour in 69 to 80 per cent. of the cases. In answer to the second, he maintained that even the severest operations (such as Cesarean section) do not make the prognosis worse, if they are done cautiously under full narcosis. He therefore advocated the speedy emptying of the uterus in cases of eclampsia occuring at the eighth month or later, as soon as the diagnosis is certain, by means of " bloody " dilatation of the cervix (multiple incisions) and forceps, or by a combination of the " bloody " with the mechanical dilatation (colpeurynter). He claimed that the early induction and rapid termination of labour will save more children than the expectant treatment by drugs, baths and dieting. In cases of eclampsia before the eighth month, he preferred the expectant method as giving the child a better chance by allowing longer time for development and growth.

In the article under review Zweifel first sketches the treatment of eclampsia from the time of Velpeau to the present day, and then reports 129 cases which have been treated in the Leipsic Clinic from April, 1887, to October, 1895. The treatment was chiefly expectant until January, 1892, but since then it has been mainly active, based upon Dührssen's plan of multiple incisions of the cervix followed by rapid delivery. He says that Velpeau's monograph in 1835 was the

first serious attempt to found a rational treatment of eclampsia upon facts and personal experience instead of theory. In addition to sinapisms, blisters, leeching, cupping and bleeding, Velpeau recommended general warm baths, the artificial induction of labour and rapid delivery. He condemned cold applications to the head (douches), restricted the use of *accouchement forcé*, preferring incisions of the os uteri and rapid dilatation with the finger, followed by version and immediate extraction. In 1841 Godemer advised rupture of the membranes to relieve uterine tension, followed by vaginal hysterectomy as being less painful and less liable to cause irritation than other methods of delivery. In 1843, Dubois advised incision and dilatation of the os. Hildebrandt in 1864, and Chailly-Honoré and Soyre in 1866, advised and practised incisions of the cervix. Halbertsma pointed out that convulsions usually cease after complete emptying of the uterus, especially if this can be done after the first fit, and recommended Cesarean section as the quickest means of accomplishing this result. Zweifel says that complete emptying of the uterus is not easy when severe eclampsia has begun, but by the use of hydrostatic dilators (colpeurynter, or Champetier-de-Ribes' bag) delivery may generally be accomplished in one hour. He condemns Cesarean section except in special cases, and claims that it is not the quickest means of emptying the uterus, since considerable time is lost in preparing for the operation. Nor is it as safe, as Dührssen's plan of multiple incision, for it exposes the patient to many additional risks. The only case in which he performed Cesarean section was one of markedly contracted pelvis, and there were 30 fits after the conclusion of the operation. He holds that eclampsia is not *per se* an indication for Cesarean section. Of his 129 cases, convulsions occurred first *post-partum* in 32. Of the 97 cases in which eclampsia occurred *antepartum*, 5 were cases of twins and 1 of triplets. Of 103 children, 34 died, giving a mortality of 33 per cent ; 50 were full term, 10 of whom died ; 53 were premature, 24 of whom died. The maternal mortality was : under the expectant plan of treatment, 32·6 per cent (16 out of 49 cases) ; under the active plan, 15 per cent. (12 out of 80 cases). The mortality among primiparæ was 16.6 per cent., of multiparæ 5.5 per cent. Tarnier's milk treatment was employed whenever indicated by the presence of nephritis ; but he has not as much confidence in it as the French obstetricians seem to have, and maintains that we should not delay the induction of labor in cases of nephritis. Blood letting for the relief of headache, a favourite treatment in earlier days, has not been found necessary in the Leipsic clinic, and morphia has not been used for three and a half years, except for the

relief of great restlessness. Jaborandi and pilocarpine increase salivary secretion and tend to produce pulmonary œdema. He strongly recommends vegetable diet, and has had good results from irrigation of the stomach and the administration of dilute vegetable acids[1]. He prefers citric and tartaric acids, introduced by means of a stomach tube if the patient is unable to swallow. Vegetable acids dissolve albuminoid matters and act as diuretics when combined with sodium and taken up by the blood. Zweifel's conclusions may be summarized as follows : When convulsions occur during the progress of labour, deliver as speedily as possible. If the external os is undilated but the cervix is soft and dilated, distensible rubber dilators (colpeurynter, Barnes' or Champetier-de-Ribes' bags) may suffice to ensure dilatation, aided perhaps by small incisions of the os which bleed slightly. If, however, the cervix is not obliterated and a hard, thick resisting ring is present, through which only one finger can be passed, the colpeurynter should first be employed, and if incisions are required they must be deeper and longer. Severe bleeding will follow, but it may be controlled by clamping and then padding the wounds firmly with pledgets of sterilized cotton and tamponing the uterus with sterilized gauze. Since we never know how much blood will be lost during delivery, it is better to reserve bloodletting for the relief of convulsions recurring after the conclusion of labour. As much as 500 grams may be taken, if the arterial tension is high. While the patient is narcotized and unconscious, nothing should be given her to swallow, but fluids may be introduced into the stomach by means of a stomach-tube, Lavage is useful when there is digestive disturbance. A weak solution of citric or tartaric acid may be introduced with advantage when the stomach is empty. Chloroform and ether may be used for anæsthesia; Zweifel does not agree with some American writers who consider that ether is contra-indicated in cases of nephritis. The most rigid antisepsis is essential throughout the whole course of the treatment, as sepsis may cause a continuance of the convulsions.

J. C. Cameron.

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[1] Citric, tartaric and acetic acids are given in solution as follows :

Acid citric g. 2.5	Acid tartaric g. 2.5	Acid acet. gil. g. 2.5
Aq. — 500.	Syrup — 30.	Syrup q.s.
	Aq, — 300.	Aq. — 200.

Pharmacology and Therapeutics.

On Diuretic Medication.

HUCHARD, H. "On diuretic medication and on theobromine."—*Journal des Practiciens*, July 6, 1895.

Prof. Huchard believes that in the future we shall place more reliance on diuretic medication than we do at the present, and emphasizes the importance of the functions of the kidney in the elimination of the toxines which may be either produced by or received into the organism.

For therapeutic purposes he classifies diuretics according to their modes of action into those which act mechanically and those which have a direct action upon the kidney. Mechanical diuretics may act by directly increasing the blood pressure, and as a consequence the rapidity of the stream through the glomeruli ; digitalis is the type of this class. Water and aqueous drinks which act by increasing the volume of the blood, and thus indirectly raising blood pressure, form a second sub-division. Diuretics which have a direct action on the renal epithelium, may be divided into those which merely stimulate the function of the renal cells without altering it, and those which produce diuresis by bringing about more or less congestion of the kidney. As types of the functional epithelial diuretics may be mentioned milk, lactose, theobromine, asparagus, dandelion, &c., whilst juniper and cantharides belong to the class of epithelial irritants and should be seldom employed.

Dr. Huchard draws special attention to the value of theobromine as a diuretic. He states that it has little action on the nervous system, its toxicity is very slight even in large doses, it has no action on the heart or arteries, and while its diuretic action is more prolonged than that of caffeine, it is apparently not liable to irritate the kidney in its elimination. It is indicated in dropsies of cardiac origin, and in some cases of Bright's disease. He recommends it to be given in cachets containing half a gramme each, of which eight may be given on the first day, six on the second and third days, and four on the fourth day. Under this treatment there is a rapidly increasing diuresis. It is sometimes serviceable to combine in the cachet an equal quantity of neutral phosphate of sodium. Diuretin he thinks an uncertain product and less active.

Action of Bicarbonate of Sodium.

LINOSSIER AND LEMOINE. "Action of bicarbonate of sodium on the gastric secretion."—*Bulletin Générale de Thérapeutique*, December 15, 1894.

MATHIEU, A. "Upon the influence of bicarbonate of sodium upon the gastric secretion.—*Gazette des Hospitaux*, September 10, 1895.

A prolonged discussion has been going on, principally in the French medical press, as to the exact action of sodium bicarbonate on the gastric secretion. In June, 1893, MM. Linossier and Lemoine published in the *Archives Générales de Médicine* the results of a series of experiments. Their conclusions at the time were controverted by several writers, and experiments were brought forward, in which results contradictory to their own were obtained. They, therefore, undertook a fresh series of investigations, and for their subject had a young soldier, who possessed the power of returning at will the contents of his stomach. Sodium bicarbonate was administered in varying quantities, both before and after a meal, and a careful analysis of the chyme was made several times in the course of each experimental digestion. Their conclusions are summed up as follows :

The immediate action of bicarbonate of soda on the gastric secretion is essentially stimulating. If the dose is small or medium, the stimulating effect continues after its neutralization and provokes an increase of hydrochloric acid secretion. If the dose is large the secretory energy of the mucous membrane is exhausted in counteracting the alkalinity, and when an acid reaction of the chyme is once more re-established, the period of stimulation is arrested and the normal amount of acidity may not be reached when the food passes out of the stomach. The stimulating action is manifested most markedly when the drug is administered before the meal. The authors add that it may be supposed that by a repetition of a moderate stimulus the mucous membrane of the stomach may take on a persistent hyperactivity, which would explain its good results in patients with diminished hydrochloric acid secretion. On the other hand, its sedative action in large doses in cases of hyperacidity, may be due to exhaustion of the mucous membrane by repeated powerful stimulation. At the same time prolonged treatment with large doses results in increased alkalinisation of the blood, reducing the acidity of all acid secretions. It would appear desirable in cases of hyperacidity to endeavour to alkalinise the blood without stimulating the stomach, by administering the drug per rectum, or in the form of a salt of an organic acid (*e.g.*, as a citrate or lactate).

Dr. Mathieu, in his paper has arrived at very similar conclusions He opposes the statement made by M. Reichmann, that sodium bicarbonate has no action upon the secretory powers of the stomach, objecting that the technique employed by the latter was defective and that the examination of stomach contents was made too soon after the exhibition of the drug.

Dr. Mathieu thinks that the present state of our knowledge on this subject may be summed up as follows :

1. Bicarbonate of sodium produces, immediately, total or partial neutralization of the acidity of the stomach, and if the dose is sufficiently large, alkalinization persists and peptic digestion is stopped.

2. With a smaller dose the secretion of hydrochloric acid continues after the bicarbonate has been transformed into the chloride of sodium, and may become even stronger than before.

3. A sufficient dose of sodium bicarbonate given before food, stimulates both the motor and secretory activity. The excitation of the secretions appears more marked in those cases where the secretion is defective than where it is in excess, unless the deficiency is due to an advanced atrophy of the glandular elements.

Pathology.

The Study of Variation.

Bateson. "Materials for the study of variation, treated with especial regard to discontinuity in the origin of species." London and New York, MacMillan & Co. 1894.

In a most suggestive article, forming the first and introductory paper in the first volume of the *Journal of Pathology*, by Virchow, the great leader of medical science indicates the difficulty that exists in defining scientifically and accurately what is the essential basis of heredity, more especially when the cases are taken into consideration in which transformation accompanies descent, and he points out that it is to pathology that we must eventually look for the rules governing such transformation. "Every case of descent," says he, "in the sense in which Darwin uses the term, that is to say, every deviation from the type of the parent animal must have its foundation in a pathological accident."

The more one considers the facts in connection with variation, whether in the more limited sphere of the study of congenital abnormalities and defects in man, or the wider study of variations affecting both animals and plants, the more assured does one become of the truth of Virchow's statement.

But if these variations be pathological, that does not necessarily imply that they are valueless, and a study of such departures from the normal, while it forms truly a branch of pathology, is strongly attracting the attention of modern biologists, for it would seem calculated to afford a more solid basis for the establishment of a knowledge of descent, and the production of new species, both animal and vegetable, than any other branch of biological study. In this connection Mr. Bateson, in the work here reviewed, has brought together a mass of facts of the highest value. It is true that he does not pretend to accomplish very much in the way of giving an explanation to the large mass of facts which he brings forward. He does not attempt to explain or indeed to deal at any great length with the inheritance of variations : he simply records cases in which variations have been observed. But this very record, by placing the numerous cases in orderly sequence, is in itself most valuable and is the beginning and the basis upon which laws relating to the subject must be established.

Much of his material is of direct value to the anatomist and to the pathologist, for he has collected together the cases of variations in the vertebræ and ribs, in spinal nerves, the cases of persistent branchial openings and the structures in connection with them, the cases of supernumerary mammæ, of polydactylism, of congenital abnormalities in the uro-genital system, and again of double monstrosities, all of which as they affect man, are of very direct interest.

But medical readers interested in the problems of development and of species will, I think, find most food for thought in the introductory portion of the work, in which the subject of variation in general is most ably and most suggestively considered, and at the same time the theories of descent at present most in vogue are subjected to searching criticism.

According to the generally accepted view, it is held that the discontinuity of species has been brought about "by a natural selection of particular terms in a continuous series of variation," or, in other words, it is generally held that there has been progressive evolution, and that species represent stages in a gradual development, at which there has been attained a peculiarly satisfactory equilibrium, if I may use the term, between the organism and its environment. But while this has been accepted, all students have seen the difficulty or difficulties that the view presents. How, for example is it to be explained that a new organ makes its appearance? That new organ is presumably of distinct use to the individual, but granted that it has been developed continuously, there must of necessity have been a series of individuals in whom the organ, while gradually improving, must have been imperfect and incomplete, and to all intents and purposes, have been useless. Why should animals whether by natural selection or by any other law burden themselves with the development of useless organs?

This consideration alone is sufficient to render it worthy of enquiry whether variation is truly continuous. If we consider the evolution of human knowledge and acquirements, we assuredly do not find this to be the case. As I pointed out two years ago, before a literary society in Montreal, we find that once a new principle or new method is achieved, be it in architecture, in art in general, in printing, in the employment of steam and so on, we do not observe progressive advance, but, on the contrary, utility at the very inception and advance in a bound, so that almost from the beginning, or within a relatively very few years, the principle or the method is utilized to its fullest extent. The most perfect examples of Norman, early pointed and perpendicular styles of architecture are to be found among the earliest buildings in each

style. Centuries of printing have not given to us more exquisitely produced books than those of the year 1490 or thereabouts. Decades of strenuous endeavour have not greatly improved upon the locomotive steam engines of 1840, either in speed or in economy of fuel. That is to say, within twelve years the locomotive approached to the most perfect type. The law would seem to be that once a given accomplishment is gained, forthwith man brings that accomplishment to its highest state. I doubt not that this has already been fully recognized. If this be so, and if, as Mr. Herbert Spencer would shew, the laws governing human progress and those of organic evolution are identical, we may expect to find evidence of a similar discontinuous advance in the development of species.

Now Mr. Bateson's evidence, so far as it goes, strongly supports this conclusion. No one can study the matter brought forward in the book before us without becoming assured that variation is at the least very frequently discontinuous, and as a consequence it is quite possible that the origin and development of species has also been discontinuous. Take, for example, one of the simplest cases given, namely, that of variation in the number of petals in flowers whose parts are disposed radially. Such examples are very common and, as Mr. Bateson says, variation of this kind may be seen in any field or hedgerow. Anyone possessing only a town garden or a green-house can easily observe the phenomenon. In the tulip, for instance, among garden flowers, we may have the rays present in fours instead of three. Again, among the radially disposed lower animals, among the medusæ, such as, for example, the aurelia, the whole body may be divided into six or some other number of parts instead of into four, the normal number.

To return to the tulips. Between forms in 3 and forms in 4 are intermediates possible, and if possible do they exist? Now, by choosing suitable species of regular flowers, individual flowers may no doubt be found in which there are 3 large segments and 1 small one, or 2 normal segments and a third divided into 2, making 4 in all; such flowers are rare, while cases of perfect transformation are common, and with regard to these rare cases the grave doubt may be expressed as to whether they are in any true sense intermediate between the perfect form in 3 and the perfect form in 4. While several degrees of completeness in variation may be seen in the offspring of the same parent, any one member of such a family group may show a particular variation in its perfection; the occurrence of any intermediate in the line of descent is by no means necessary for the production of the perfect variation. Again, to turn to what we

observe in man. While cases of polydactylism, it is true, not infrequently present imperfectly formed supernumerary fingers, there are numerous cases on record of those born from perfectly normal parents, in whose ancestry there is no recorded case of polydactylism, who nevertheless present one or more perfectly formed accessory fingers. So also with supernumerary mammæ; while most frequently the accessory mammæ are imperfect, there are many examples of perfectly formed mammæ, accessory and appearing at a bound as a perfect variation.

This discussion of the sudden appearance of new organs, or parts of new organs, which are more or less reduplications of pre-existing organs, brings us to the subject of reversion. The ordinary explanation given for the presence of the accessory parts is that they form examples of reversion and that they represent a condition of atavism, or reproduction of parts which were present at some point in the line of ancestors. Mr. Bateson shows very forcibly that this doctrine of reversion is thoroughly unsound and untenable in perhaps the majority of cases in which it is invoked. While for example it is true that in many cases supernumerary mammæ appear along a line stretching anteriorly from the axilla down to the pubes on either side, there are other absolutely well authenticated cases in which fully developed mammæ, with nipples and gland tissue, have shown themselves on the face, on the back or even upon the extremities. It is impossible to consider such as instances of reversion. Indeed the assumption that where supernumerary mammæ occur along, what for brevity may be termed the mammary line, they are examples of reversion, implies acceptance of the belief that the primitive mammal was possessed of mammary glands upon each segment between the fore and hind limbs, and that every similar case of supernumerary mammæ in the lower animals provided with several pairs of mammæ (such cases are very numerous) is also a reversion. What evidence we have is absolutely opposed to this view. The lowest mammals certainly do not possess the greatest number of mammary glands. Or take another: the percentage of extra molars in the anthropoid apes is almost the highest among mammals. On the usual interpretation such accessory teeth are due to reversion to an ancestral condition with four molars. It has been argued that mammalian forms frequently showing such "reversion" are older or more primitive than those which do not. From this reasoning it should follow that the anthropoid apes are the most primitive form of monkeys, not to mention other mammals. It is surely time, says our author, that those brilliant and facile deductions were no more made in the name of

science ; it would probably help the science of biology if the word reversion and the ideas which it denotes were banished or banned for an indefinite period.

In its place we have to take into account the main directions along which variation may manifest itself. Of these there are two which, if not the only directions, are certainly the most obvious and the most important. These he designates meristic and substantive. The human body, and indeed all living forms, are composed of parts disposed symmetrically around a central axis, which are, or are not, repeated in series, and this same symmetry and repetition are to be recognized in the component parts of parts. To the features associated with this symmetry and repetitive arrangement, Mr. Bateson applies the term meristic, while the term substantive refers to the qualitative features (size, colour, etc). Thus for instance, albinism is a substantive variation, polydactylism a meristic. Mr. Bateson, by the very number of the examples that he brings forward points out one conclusion at least. He shows that a very large number of variations and of distinctions between allied species are meristic. He indicates that one of the laws of variation is, that there can be the addition or the suppression of one or more of a series of meristically disposed portions of the organism, and that the force leading to the meristic development of the organism permits the addition or removal to be complete in itself. Such a law embraces an important group of variations, and would seem to afford an explanation for the sudden rise of these variations, which is distinctly superior to the old reversionary theory. Mr. Bateson, it must be acknowledged, never formulates the law in these or other words, indeed, while he subjects the older theories to an analysis, more often destructive than confirmatory, he is almost painfully modest in drawing conclusions, and this modesty is faithfully reflected in the title of the work.

Reverting to the illustration I have given of what obtains in connection with the discontinuity of the progress of human knowledge, it is to be observed that while each new achievement appears to be rapidly brought towards perfection, nevertheless to say that the process of mastery is immediate is, after all, a *façon de parler*. In every case between the initial application of a new principle and the fullest application of the same, there is a period of progressive improvement. With the discontinuance, there are associated periods of continuous advance—and while Mr. Bateson demonstrates the inherent probability of a discontinuous evolution of species, he is careful to acknowledge that with it there must be assumed the working of a continuous variation. Or, to state the matter definitely, the assump-

tion of the existence of discontinuous variation does not render it necessary to deny the action of continuous variation.

As to why certain variations tend to be inherited, our author wisely does not commit himself, for the facts are wanting upon which to base any certain statements.

With regard to substantive variation, Mr. Bateson has not been able to bring together nearly so full a collection of examples, and there would appear to be little that can be stated with precision or with brevity concerning them. I will, therefore, refer those interested in the matter to the original, which certainly will repay perusal.

J. G. Adami.

Laryngology.

The Cigarette Habit.

MULHALL, J. C. "The cigarette habit."—*New York Medical Journal*, November 30, 1895.

This paper is written by one who has smoked cigarettes for twenty-five years, and therefore feels that he speaks with a certain amount of authority on the subject. In order to set at rest the popular opinion that cigarettes are impregnated with all sorts of narcotics Ledoux carefully analyzed several popular brands, and the results of his investigations conclusively proved that there is no other drug but nicotine in the tobacco and a harmless quantity of cellulose in the paper. The effects of smoking Mulhall divides into local and constitutional. The local effect of using tobacco in the ordinary way is a slight hyperæmia, or insignificant catarrh, in the healthy throat. As used in cigarettes, that is by inhalation, the smoke comes in contact with the laryngeal, tracheal and bronchial mucous membrane, and here produces in many the same trivial hyperæmia and secretion. Hyperæmia, not inflammation, acute or chronic, is the sole disturbance. The writer believes that the cigarette smoke, when inhaled, does not reach beyond the first division of the bronchial tubes. The author also states that the inhalation of cigarette smoke will not, *per se*, produce throat or nose troubles, but it will aggravate any existing trouble arising from other causes.

The constitutional effects of cigarette smoking are to be seen in the nervous system.

It being admitted that the use of tobacco is a great evil in the young, it follows as a self-evident proposition that any method which encourages its use must be more reprehensible than a method which discourages its use, and the cigarette, above all methods, presents this encouragement to the use of tobacco. In its mildness is concealed its very capacity for doing harm, for the reason that it teaches the use of tobacco ; its mildness also explains its fast spreading use amongst young women.

In the discussion which followed the reading of this paper at the recent meeting of the American Laryngological Association, the weight of opinion was that cigarette smoking as a habit is harmful, not only in its local effects, but also in its effects upon the constitution.

That tobacco smoking in any form does *per se* produce changes in the normal appearance of the throat is my opinion. In two cases of marked irritability of the throat occurring in young women, the changes seen in the throat were very suggestive of those produced by smoking, and upon questioning, the cause was admitted to be cigarette smoking. It is also my experience to find that in singers and public speakers smoking produces a mild catarrhal laryngitis which, in many cases, is the cause of the temporary huskiness complained of, and merely rest from the habit has cured the trouble. That one or two noted singers have used tobacco without detriment to their voice is well-known, but that a dictum should go forth that smoking is not injurious to the normal throat requires, in my opinion, to be qualified by the individuality of the person smoking.

H. S. Birkett.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

PRAGER MEDICINISCHE WOCHENSCHRIFT.

Ueber einen Fall von congenitaler Syphilis—George Mathewson.

NOVEMBER, 1895.

THE CANADIAN PRACTITIONER.

University facilities ; student's duty. An address at the opening of the Medical Department of the University of Toronto—A. McPhedran, p. 799.

Notes on a case of brain tumour, with an account of its partial removal—J. Webster, Kingston, p. 813.

Physical training and development as a therapeutic measure—B. E. McKenzie, Toronto, p. 822.

THE CANADA LANCET.

A pistol shot wounding stomach, large and small intestines, and mesentery, with recovery—George S. Rennie, Hamilton, p. 73.

Laboratory notes on the bacteriology of diphtheria—E. B. Shuttleworth, Toronto, p. 76.

With Dèjérine at the Salpêtrière.—W. Campbell Myers, Toronto, p. 81.

THE MARITIME MEDICAL NEWS.

Anterior abdominal nephrectomy—James McLeod, Charlottetown, P.E.I., p. 227.

Notes on abdominal tumours—P. Conroy, Charlottetown, P.E.I., p. 232.

Report of a case of Myxœdema—C. J. Fox, Pubinco, p. 233.

Case of delayed labour, due to dropsical effusion—C. P. Bissett, St. Peters. N.S., p. 235.

Case of penetrating wound of abdominal cavity, operation, recovery—A. C. Hawkins, Halifax, N.S., p. 235.

LA CLINIQUE.

Des émotions vives chez la femme enciente, cause de la monstruosité—A. L. de Martigny, Montreal, p. 143.

THE CANADIAN MEDICAL RECORD.

Fracture of bones and ossification of muscle in tabes dorsalis—J. Bradford McConnell, Montreal, p, 49.

Report of a case of papillomata of the ovaries and tubes, removal, recovery—Lapthorn Smith, Montreal, p. 53.

DECEMBER, 1895.

DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

Clinical notes on a recent series of surgical cases—T. H. Manley, New York, p. 665.

Dysmenorrhœa with anteflexion of the uterus and stenosis of the os internum—J. Campbell, Seaforth, Ont., p. 672.

Cases in practice—Frank and Ernest Hall, Victoria, B.C., p. 675.

Scarlet fever—W. Lovett, Ayr, Ont., p. 676.

Cases of nervous affection—C. J. H. Chipman, Ottawa, p. 677.

The intelligent use of rectal injections, with improvement of ordinary enema syringe—P. Palmer Burrows, Lindsay, Ont., p. 678.

A Case of Congenital Syphilis---George Mathewson.

This article is a very full and clear account of a case of congenital syphilis studied in the Pathological Institute at Prague, under Prof. Chiari. The case was characterized by the extreme extent and diffusion of the syphilitic manifestations. Besides the presence of pemphigus and encephalitis, gummata were found and studied in the meninges, the thymus, the lungs, the myocardium, the liver, kidneys and right femur. These morbid changes were found in the body of a fœtus born during the seventh lunar month. The characteristic of the gummata in the various organs, was that they presented advanced calcification, a clear intimation that the syphilitic neoplasms must have developed at a relatively very early period of fœtal life. While it is not uncommon in congenital syphilis to find luetic changes in the skin, lungs, liver and bones, it is unusual to have gummata in such regions as the meninges, the thymus, the heart and kidneys. In connection with the same case, the maternal placenta exhibited thrombosis, arteritis and vesicular changes in the chorionic villi, comparable with the pemhigus, which affected the child. *J. G. Adami.*

Physical Training and Development as a Therapeutic Measure---B. E. McKenzie.

The writer points out that there is an essential difference between athletics and gymnastics. The aim of athletics is pleasurable activity for the sake of recreation, that of gymnastics, with which he associates massage, is training, not only for pleasure, health and skill, but for the improvement and often complete obliteration of bodily deformity. The necessity for attention to the physical development of children will be apparent to any one who will notice how many of them, especially in large centres of population, are unsymmetrical, distorted, and imperfectly developed. Measurements are given by which it is demonstrated that the symmetry and physical development of the women of the present day cannot compare with that of primitive or uncivilized races, or the best models of Greek statuary. This difference arises from the very many far-reaching evils of modern customs and fashions.

In the greater proportion of deformities, *per se*, a brace should never be applied. It is very necessary to distinguish between deformity and disease, for it is in the latter class of cases that orthopædic appliances are of use. By careful physical training, even those with spinal deformity may be helped materially and perhaps entirely cured. He advocates the use of the mirror to allow the patient to see her own deformity and to make her understand that its cor-

rection is to be obtained by her own efforts. Class work is far better for the patient than for her to work alone, as the exercises may soon grow monotonous. Two cases are cited, one, a girl of 22 years of age, with strongly marked lateral curvature, with pain in the back and legs. After several months of graded exercise there was very manifest improvement, and now after a lapse of two or three years she presents an excellent figure and is in good health. The second case, a poorly nourished boy of 7 years, with moderately marked roto-lateral curvature, accompanied by chorea. Improvement in the chorea was manifest in a few days, and in a week the boy had assumed control of his muscles.

The effect of exercise on the mentally imperfect is also touched upon. Recent work on the subject shows it to be a most valuable means by which the condition of these unfortunates can be much improved.

The writer concludes his paper by claiming, that systematic exercise has not been sufficiently employed by the medical profession ; that modern modes of living are rendering attention to this subject more imperative ; that while it is the most efficient agent which can be employed in the treatment of deformities, and while it is an aid to all others, yet it does not take the place of tried and proved methods ; that it demands, for its most successful use, persons trained especially for the performanue of the work ; and that its purpose is not only and chiefly to develop muscle, but to reach the whole being, improving and strengthening the nervous, digestive and circulatory apparatus.

A Pistol Shot Wounding Stomach, Large and Small Intestines, and Mesentery, with Recovery---George S. Rennie.

This very interesting case illustrates how recovery may follow the most severe injuries to the peritoneum and abdominal viscera. The patient was shot in the abdomen during a bar-room row, with a ball from a 32-calibre revolver, and was operated on about an hour later. The ball had entered the abdomen three-quarters of an inch above and to the right of the umbilicus, a portion of omentum, about half the size of a man's hand and covered with dirt, protruded from the puncture. After careful preparation, this hernia was cleaned, ligatured and cut off. A median incision was made and the cavity was found full of clots, fluid blood and fæces. A large rent was found in the mesentery of the transverse colon and two small ones in that of the small intestines, from all of which there was free hæmorrhage. The small intestines were perforated in four places, and the transverse colon in two. These six holes were closed with a continuous Lembert

suture. The stomach was next examined and an elliptical hole, about the size of a quarter dollar, with ragged edges was found on the anterior wall near the lower border, this was closed in the same manner as the wounds in the intestines. The abdominal cavity was then thoroughly cleansed by a large quantity of hot sterilized water. Careful search failed to find any further damage. The abdominal wound was sutured and a gauze drain left at the lower angle. The patient made an uninterrupted recovery, the temperature only on one occasion rose to 100°, and he was discharged from the hospital at the end of a month. Since then has been as well as he ever was in his life.

A Case of Penetrating Wound of the Abdominal Cavity---A. C. Hawkins.

The patient, a boy aged 9, had been gored by a cow, and through a rent in the abdominal wall a large coil of small intestines and cæcum, covered partly by omentum, protruded. On examination the intestines were found to be uninjured, but the omentum was torn. The laceration was enlarged, and the protruding intestines, thoroughly cleansed by a 1 per cent. carbolic solution, were returned by performing taxis over a towel, after having the body raised to Trendelenburg's position. Three inches of the torn omentum was removed and the abdominal wound was sutured. The patient made a rapid and uneventful recovery.

A Case of Myxœdema---C. J. Fox.

The writer states that this disease is of the greatest rarity in Nova Scotia ; that he has never seen a case reported, nor heard of one occurring in that province. The case he reports is therefore of interest. The patient had not been well since the birth of her last child, three years before. She was formerly very slight, weighing 118 lbs, but has since then increased in size until she weighed about 180 lbs. She was always cold and had a dry skin, there was a constant feeling of lassitude and lack of energy. She presented a marked dulness of expression which became more pronounced as time elapsed, and which gave the first clue to the nature of the malady; this, together with a peculiar slowness or dragging in the speech, was characteristic. Three grains of dessicated thyroids, morning and evening, were administered, which made her feel uncomfortable, producing pains in the head, with dizziness, and restlessness. The quantity was reduced until there were no unpleasant symptoms produced. The beneficial effects of the treatment were most pronounced.

Kenneth Cameron.

Reviews and Notices of Books.

A Text-Book of Physiology. By Michael Foster, M.D., L.L.D., Sec. R. S. London and New York: MacMillan & Co. 1895.

Of all the text-books that are likely to come into the hands of a student during his career, and of all works of reference outside his immediate subject to which the practitioner turns in later life for refreshment and inspiration, it may safely be said that there is none more admirable in style, in sober impartial presentation of its subject and in suggestiveness than is Professor Michael Foster's well known text-book of Physiology. It may be wanting in "tips," it may not be quite suitable for purposes of cramming, it may not give a long list of investigators, it may not, upon superficial reading, appear to deal with the minutiæ of its subject, and yet if one is conversant with any small part of physiology, one cannot but be impressed, in reading what Foster has to say upon that special branch, that somehow or another he has managed to condense into single sentences all that is solid and certain of the results of months of work by able investigators, while each paragraph contains the gist of many monographs. To read such a work, to study carefully the disinterested manner in which the pros. and cons. of physiological problems are martialled in order, and weighed and found worthy, or found wanting, is in itself an education of the highest order. No other work illustrates so consistently the method of scientific thought and the mode of attacking scientific and medical problems. But undoubtedly the successive editions brought out upon the other side as they have grown larger and larger, and have appeared in more and more numerous volumes, have made it difficult for the ordinary student to acquire the work. Upon this side of the water the difficulty has been met by the publication of editions abbreviated, we believe, against the will of the author. Now at length we are glad to welcome an authorised abbreviated edition in one volume, and we trust that the appearance of the new edition will establish this in the position that it deserves to hold among American students. The abbreviation has been brought about by shortening and expurgating those parts of the larger which in the main deal with histological detail. The work, therefore, may be regarded to that extent as incomplete. Again, but little attention is given in it to embryological details. Thus, of necessity, the student will require the use of other works dealing with these subjects of histology and embryology. What is left behind is, however, a treatise upon the functions of the different systems of the human body and upon the vital processes written by a master hand, a treatise on physiology unequalled in any language. J. G. A.

General Pathology. By Dr. Ernst Ziegler, Professor of Pathology at the University of Freiburg in Breisgau, translated from the eighth revised German edition by a committee of American pathologists, under the editorship of Dr. Albert H. Buck. New York: William Wood & Co.

When Professor Ziegler's well known text-book first appeared it was received with much criticism by his fellow pathologists, but with a hearty welcome from German medical students, and the yet greater success of the second and later editions may be said to have been largely due to Dr. Donald MacAlister, who, in producing the popular English translation of the first edition, not only introduced many of the excellent illustrations adopted by Ziegler in his second and later German editions, but also proved to the German author the great advantage of short clear sentences over those involved and altogether vicious strings of many words, which delight the heart of the ordinary German writer, but are certainly not conducive to sweetness and light. Unfortunately the English translator who did so much to improve the quality of the text-book has never issued any further and revised edition of his translation, while, on the other hand, six further editions have been brought out by the author in Germany, each one an improvement upon its predecessor, and so well established has the work become that we cannot but welcome this new translation of the first and general portion of the eighth edition. It is altogether a most useful work, and although not free from faults, it must take its stand as the best and most modern text-book upon the subject of general pathology at present brought before English-speaking students.

Its one great fault is that it is still far too much a treatise on pathological histology, and that whereas, throughout, the description of morbid appearances in the tissues is excellent, there is far too little discussion of the causes leading to the production of each condition. To take an example at random, in the paragraph upon calcification of the tissues, while the appearances observed are described with excellent conciseness and precision, all that we are told about the intimate causation of the deposits of lime is that "it looks as if dying tissue which has undergone more or less modification possesses a kind of attraction for the lime salts in solution in the body and enters into intimate combination with them"—A statement altogether too scanty.

And similar examples of scanty treatment of the subject of causation is to be found in nearly every section treating of degeneration. A still more marked example of the same tendency (again selected at random) is to be found in the fact that whereas the description of the different forms of œdema and dropsy occupies close upon four pages of large print, practically all that has to be stated with regard to the changes which are at the bottom of the production of these conditions is relegated o one page of small print; and here the author does not attempt any

broad discussion of the causation, but confines himself to giving short and impartial descriptions of the views and experiments of the leading workers upon this subject, with a minimum of personal opinion. And the most important subject of circulatory changes, that is, of change in the composition of the blood, in its amount, in general vascular resistance and in the function of the heart are treated in a chapter in which fifteen pages are devoted to thrombosis and embolism, 6 as above mentioned to œdema and dropsy, 6½ to hæmorrhage and infarcts, 1 to lymphorrhagia, about 6 to local hyperæmia and local anæmia; whereas the remaining six pages only are given to the vast subject of impaired working of the heart, general anæmia, alterations in vascular resistance and alterations in the pulmonary circulation.

Now, whereas a text-book which is crowded with facts and with names appears to exercise a peculiar fascination upon the student, it is to say the least, questionable whether the accumulation of facts and the knowledge of many polysyllables is the best education: indeed it will not be going too far to say that educationally speaking it is bad, and if pathology as a subject of the general medical curriculum is to be of the greatest use, it must be by supplying or attempting to supply something like a scientific basis in explanation of the various morbid conditions, in order that the student, when launched into practical life, may be able to recognise symptoms and conditions, not as so many names, but as being due to this or that lesion or association of lesions, and in order that, having some idea with regard to the causation of disease, he may be the better able to treat disease. There is altogether too great a tendency to restrict pathology to morbid anatomy and histology, and while so far as it goes nothing but praise can be given to the work before us, it must be acknowledged that it does not go far enough, that it does not seek sufficient inspiration from experimental pathology or place ætiology in a sufficiently prominent position. On the other hand, it must be acknowledged that there is no recent work upon the subject in the English language supplying the wants here indicated, hence the work before us may, taken in all, be considered as the text-book upon general pathology that is most recent and most to be recommended.

The translation has been well accomplished and the general form of the work as here published leaves little to be desired. J. G. A.

Notes on Surgery for Nurses. By Joseph Bell, M.D., F.R.C.S., Edin. Consulting physician to the Royal Infirmary, and surgeon to the Royal Edinburgh Hospital for Sick Children. Fourth edition, p.p 180. Edinburgh: Oliver & Boyd. 1895.

We welcome the new edition of this excellent text-book for nurses on the principles of surgery. The lectures are clear and succinct and cover most of the processes with which surgical nurses have to deal.

In the chapter on the healing of wounds, the part that deals with

causes of infection might well have been extended by giving fuller instructions how to prevent this condition, and the recommendation to wash an uninfected wound with 1–1000 solution of bichloride of mercury must be a mistake, as solutions of this strength are rarely used now-a-days. While calling attention to these small points, we do not wish to detract from the value of the book, but rather the reverse, for we would strongly recommend every nurse to study it carefully as a most valuable work on surgery and one adapted especially for their requirements. R. C. K.

A Guide to the Practical Examination of Urine. By James Tyson, M.D., Professor of Clinical Medicine in the University of Pennsylvania 9th Edition. Revised and corrected. Philadelphia: P. Blakiston, Son & Co. 1895.

A work that has reached its ninth edition requires little advertisement: but now-a-days, when so many rivals have appeared upon the field, it may be well to recognize that this popular manual upon the examination and analysis of urine is being carefully kept abreast of the times, and that it presents in admirably clear language the experience of many years of one who is a recognized authority upon this subject.

Dunglinson's Medical Dictionary. 21st edition. Philadelphia: Lee Bros. & Co. 1893.

For the benefit of those who may possess the above work we would note that we have received from the publishers an appendix of twenty-four pages, bringing the work up to date, and adding yet further to the value of this which, as has been noticed in a previous number of the Journal, we consider a useful and most satisfactory work.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, November 15th, 1895.

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

Drs. W. W. Alexander, of Lachute; Robert Reddick, of West Winchester, Ont.; A. G. Morphy, of Lachine; A. E. Garrow and J. J. Ross were elected ordinary members.

Recovery from Perforated Gastric Ulcer.

Dr. ARMSTRONG presented a young woman upon whom he had operated some weeks before with a view to closure of a perforated gastric ulcer. Dr. W. G. M. Byers read the report of the case as follows:

She was admitted to the Montreal General Hospital at 4 o'clock in the afternoon of the 9th of October, 1895, complaining of severe pain in the abdomen. She stated that when about to retire the night before, that she was suddenly seized with severe pain in the epigastric region, which spread down along the left costal margin, and involved, during the course of the night, the whole of the abdomen. She could put the end of one finger over the point of maximum tenderness and pain. This point was situated beneath a line drawn from the tip of the 8th rib on the left side to the umbilicus, and about two fingers breadth beyond the costal margin. She did not feel any nausea, but she had induced vomiting twice during the night. She complained of headache, complete anorexia, thirst and dryness of the lips and mouth. The bowels moved once after the onset of the symptoms. She gave a history of having suffered more or less during the past five years from indigestion, weakness, constipation and slight hæmorrhages. For these symptoms she had been treated at the out-door department of the Montreal General Hospital.

I saw this woman about two hours after her admission to the Hospital, and found, in addition to the condition above noted, some fullness and rounding up of the lower part of the abdomen, with slight retraction of the upper zones. The liver dullness was distinctly less than normal, measuring in the nipple line only two inches, and in the mid axillary line two and a quarter inches. Cardio-vascular respiratory, and urinary systems normal. Red blood corpuscles in the neighbourhood of six millions, hæmoglobin eighty per cent. These

symptoms taken in conjunction with the past history of indigestion and chlorosis, and the situation of the point of maximum tenderness, made the diagnosis of perforated gastric ulcer tolerably certain, and the indications were clearly to open the abdomen, close the perforation and remove the escaped matters and products of inflammation already formed.

Operation Oct. 9th, 1895. Incision in the median line, midway between the ensiform cartilage and the umbilicus, on a level with the point where the pain was said to have started.

On opening the abdominal cavity there was an escape of gas, and the lower border of the liver, and part of the anterior wall of the stomach were visible. The edge of the liver was raised and pushed upwards, and the anterior wall of the stomach was found to be adherent on the left side of the median line, to the anterior parietal peritoneum, by soft adhesions, which were easily separated by the fingers. Above, the anterior wall of the stomach was adherent to the under surface of the liver.

Upon separating the adhesions between the stomach and liver, and passing the finger along the anterior wall of the stomach toward the cardiac end, an opening in the stomach was come upon, large enough to admit the first finger up to the second joint. The walls of this opening were felt to be fully an inch thick ; and on pulling the stomach forward, nearer to the abdominal opening, the greater part of this was ascertained to be composed of a thick layer of organized lymph.

As the thick layer of organized lymph would not retain sutures I peeled it off and then found that there had been an attempt to close a large ulcerated rent in the stomach by means of this layer of plastic lymph.

When the lymph had been completely separated, and the edges of the opening brought into a straight line, it measured three and a half inches in length.

The mucous membrane was everted over the edge of the opening, giving it the appearance of an indolent ulcer with the granulations raised above the margin.

The edges were brought into apposition and held by through and through or over and over sutures, passed through all the coats of the stomach. The mucous membrane being infolded so far as possible.

A second row of Lembert sutures was now put in infolding the first, except at the deepest part, where on account of the depth and exudation of the lymph, this could only be imperfectly done.

Leading to this spot a drainage tube of rubber was introduced, and

packed around with iodoform gauze. The wound was closed with silkworm gut sutures.

A small opening was made below, above the pubes, for drainage ; a considerable amount of yellowish, turbid, sero-purulent fluid escaped : a glass tube was then inserted into Douglas' pouch.

Her condition on leaving the table was good.

The patient is now, as you see, able to go about quite well. She takes three good meals a day with relish and her digestion is apparently normal.

Dr. James Bell, after congratulating Dr. Armstrong on the success of his case, asked if there had been any attempt at limitation of the inflammatory process in the abdominal cavity, and if Dr. Armstrong had flushed out the cavity with water or saline solution. He agreed that there was great difference in virulence between the contents of the stomach and those of the intestines ; the contents of the stomach did not contain the same pathogenic microbes as the lower tract.

Dr. J. G. Adami said that Dr. Armstrong's view that the virulence of microbes varied was now well established. In the stomach there was, as a general rule, an acid secretion or acid contents, conditions under which pathogenic organisms did not thrive, as growth was inhibited by acids. Lower down in the intestinal canal the alkaline secretions and broken down proteid matter furnished much more suitable conditions, There was not much proliferation of pathological microbes in the stomach, but it was active in the intestines—that is to to say, that in a given cubic centimetre of stomach contents there is a much smaller number of pathogenic micro-organisms than in a cubic centimetre taken from the intestine. Probably for the same reason tuberculosis did not often infect the stomach walls as compared with the frequency with which it was found in the intestine.

Dr. Lafleur pointed out that the easiest proof of virulence had been neglected in not making culture experiments. It was known that if there was an anatomical lesion of the peritoneum, a chemical irritant produced a peritonitis, which would be very much less virulent than one caused by micro-organisms.

Dr. R. C. Kirkpatrick had assisted Dr. Armstrong and could bear out all he had said relative to the size of the perforation, which he had measured at the time, and it had seemed to him scarcely possible to bring the edges together. Recovery, he felt, had been largely due to the fact that the glass drain had been inserted into the pelvis and the fluid collecting had thus been drawn off. As an instance of variability in the virulence of infection, Dr. Kirkpatrick related a case on which he had operated for appendicitis two weeks before, where cul-

tures had been made from the pus with a negative result, but he had had to open up the abdomen again on account of pus having collected beside the track of the drainage tube.

Dr. ARMSTRONG, in reply, said that there had been no limitation of the inflammatory process, and that he did not flush out the cavity, but wiped it out thoroughly with gauze pads. He did not know why cultures had not been taken at the time of the operation.

Transposition of Viscera.

Dr. T. P. SHAW showed a case. (See page 517.)

Dr. G. G. CAMPBELL referred to a case of cardia-dextra which had been in Shepherd's ward in the Montreal General Hospital during his term of residence there. (See page 515.)

Dr. T. D. REED had seen a similar case demonstrated by the late Dr. Scott. He had once been speaking to a non-medical audience on the heart, when he was reminded that Solomon had said, "The heart of the wise man is at his right hand."

Dr. J. A. SPRINGLE had a case in which cardia-dextra alone existed. The patient, a man of forty, suffering from pulmonary tuberculosis, stated that he had always thought that the heart was on the wrong side, but as he had been examined twice for life insurance and the examiners had not remarked upon the conditions, he paid no attention to it. The speaker also drew attention to the large percentage of deaths resulting from tuberculosis in cases in which partial or complete transposition of the viscera existed. Why this was so he did not know. Anomalies of the vessels from the aortic arch were frequently seen in these cases.

Some Morbid Conditions of Intestines.

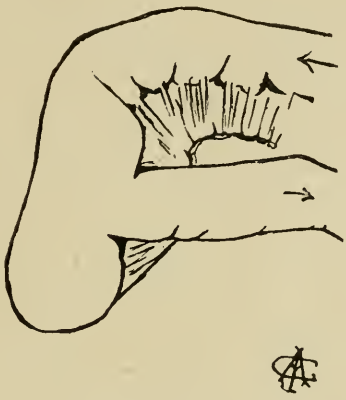
Dr. ADAMI exhibited a series of morbid conditions of the intestines obtained recently in the post-mortem room of the Royal Victoria Hospital.

Two Cases of Meckel's Diverticulum.

Of these one was of the usual type, and was brought before the Society purely for comparison with the other. It was obtained from the body of a male patient aged 15 years, and was given off from the ileum 103 cm. (about 3 ft. 7 in.) above the ileo-cæcal valve. The diverticulum (about 4 in. long) passed off roughly almost at right angles to the general direction or axis of the intestine; associated with it there was no sign of obstruction.

The other case showed an unusual complication. In this the diverticulum presented itself most clearly as a continuation of the

upper portion of the ileum 63 cm. above the valve.. It was short and broad (4 cm. by 4 cm.) and provided to its extremity with a very definite mesentery. The lower part of the gut was given off from the upper, at an angle greater than a right angle, or to put it more correctly, the angle formed by the mesenteric aspects of the two portions of the intestine was less than a right angle ; and while the diameter of the diverticulum and the gut immediately above it was



Meckel's Diverticulum, M. S., æt. 8, half the normal size.

4 cm., that of the lower continuation of the ileum was only 2·5 cm. Thus the relationship of the parts had very evidently led to a partial obstruction. The passage from the upper to the lower part of the ileum assumed a slit-like or valvular character. The arrangements of the part, in fact, closely copied, although in a reverse direction, the relationship of ileum to cæcum. This second case occurred in the body of a girl aged eight years.

Healed Intestinal Anastomosis.

Dr. ADAMI exhibited this specimen in order to show the perfect condition of healing of the intestinal wall and the condition of the wounded portion of the intestine three weeks after operation. The specimen was taken from the body of a female patient aged 51. The case presented some points of considerable interest, and Dr. Adami was indebted to Dr. Shaw for the notes in reference to it. For ten days the patient had shown signs of intestinal obstruction, with vomiting and ineffectual action of purgatives. Upon October 5th she vomited stercoraceous matter, and was admitted into the Royal Victoria Hospital under Dr. Bell. Here she presented a distinct abdominal facies, and a small resistant mass was to be felt in the right inguinal region. Dr. Bell operated the same day and discovered that there was a Littré's hernia, a small loop of the intestine without the mesentery being caught in the internal abdominal ring. Through

gangrene along the edge of incarceration a small perforation had resulted, without there being any gross escape of fæces. He cut out a wedge of the wall of the ileum, including the necrosed area, and sutured by Lembert's suture. At first the patient progressed very favourably, but eventually symptoms of partial obstruction supervened, followed by those of acute peritonitis, and the patient died twenty-one days after the operation. At the autopsy there was found evidence of old adhesive peritonitis in the shape of well organized bands in the hinder portion of the abdomen. This represented a condition much older than the final illness. There was, in addition, a sub-acute adhesive peritonitis around the operation wound, and besides this localized condition there was generalised peritonitis. In separating the cæcum a drop of pus was found between the viscus and the abdominal parietes, and there was in addition an adhesion between a loop of the ileum and the right Fallopian tube. Here again on separation some pus exuded, and upon opening the right Fallopian tube there was found a condition of pyosalpinx of moderate extent. It was difficult to explain the setting up of acute peritonitis and subsequent death of the patient, save on the supposition that the slight degree of obstruction, brought about by the developing organized adhesions in the neighbourhood of the wound, had led to a lowered vitality of the intestines and abdominal contents in general, and thus had led to conditions favouring a second infection of the peritoneum.

Congenital Absence of the Appendix Vermiformis.

The specimen exhibited had been obtained from the body of a male child 3½ weeks old. The cæcum was continued 11 mm. beyond the lower border of the junction of the ileum to the large gut; anteriorly the lower extremity of the cæcum had the appearance of a truncated cone; posteriorily the appearance was that of a blunt cone turned upon itself for 10 mm., the portion thus turned round having a blunt rounded extremity, and being fused to the body of the cæcum. From the blunt termination, a fine fibrous filament 9 mm. long passed upwards along the postero-internal border of the cæcum. It was attached to a continuation of the mesentery, just as is the true appendix. But while possibly this might be said to represent the appendix, it was merely a solid fibrous thread, so thin as to be almost unrecognisable, and the appendix as such, could only be spoken of as being absent. In other respects the shape of the cæcum closely resembled Treve's picture of the cæcum of the Mangaby ape.

Chronic Perityphlitis, Causing Intestinal Obstruction.

Dr. ADAMI exhibited a specimen prepared and dissected by Dr. C. F. Martin of this condition which, but a few years ago, was thought to

be not unusual, but which now-a-days as an uncomplicated condition is regarded as being distinctly rare as compared with typhlitis or appendicitis, with its sequelæ.

The specimen was obtained from a man about 35 years old, in whom symptoms of intestinal obstruction were first noticed upon October 3rd, 1895. The patient died six days later. While the patient himself gave the history of continued good health up to the time of the last attack, his wife stated that since he was nine years old he had been subject to abdominal pain, at intervals. The notes (by Dr. Colvin) are of necessity very brief. On admission to Dr. Bell's wards at the Royal Victoria Hospital, the patient presented an abdominal facies, the abdomen was distended and tympanitic, and so tender as to prevent examination. There was frequent vomiting in gushes, and the patient died within a few hours, before the operation for which he had entered the hospital, could be performed. At the autopsy veil-like organised adhesions were found between the omentum and the abdominal parietes, as also between the large intestines and the abdominal wall. Besides this evidence of chronic and old peritonitis, there was a general condition of acute early peritonitis, with great injection and dulling of the serous coats of the viscera, slight dry exudation between the coils and relatively very little fluid present. In the right iliac fossa the following parts were found adherent by old dense adhesions, viz., the transverse colon, the second part of the duodenum, and coils of the ileum. These adhesions had led to narrowing of the lumina of these viscera, the narrowing was greatest at two places along the ileum, and here evidently, judging from the diameter of the intestine of the uppermost of these, the obstruction had taken place, it was however noticeable that the obstruction was incomplete, and as a consequence it would appear that the actual complete stoppage was due to kinking at the sharp bend of the adherent coil. There was no sign of gangrene anywhere or of perforation, and in this case, as in that first previously mentioned this evening, the acute peritonitis must be regarded as having been due to the obstruction bringing about such a condition of the coats of the intestines as to lead to the infection of the serous surfaces. Here presumably by passage outward of bacteria through the intact walls. All the adhesions met at the cæcum round about the attachment of the appendix, and here thick fibroid tissue held all the parts firmly together. The appendix, however, situated in the midst of this fibroid area showed in itself no signs of disease, save that it was bound down in a somewhat coiled fashion by the surrounding adhesions. There was no sign of constriction of its lumen at any

point, of inspissated contents or dilatation. Its coat, when the surrounding, moderately loose adhesions were removed, was smooth and presented no cicatrices or evidence of old perforation I have already examined not a few appendices, removed in cases of so-called appendicitis, in which, while there was abundant evidence discovered at the operation of acute inflammatory disturbance around the appendix, sections from the organ itself showed but little that was specially noticeable beyond the dilated and influenced condition of the vessels of the outer coat. The specimen here shown would seem to be an example of a possible sequela to such cases as these.

Torsion of an Appendix Epiploica.

Dr. ADAMI brought this specimen before the Society, not because of its importance, but because it exhibited a condition which might reasonably be expected to be more frequent. The appendices epiploicæ vary greatly in extent and in arrangement. Often they are present as more or less fanlike or fingerlike fatty masses given off at right angles to the circumference of the gut in the plane of the transverse axis, often however, they are isolated pedunculated masses, as in the present instance which showed several such appendices. Here the pedicle of one had become twisted, and as a consequence there was venous arrest ; the organ was turgid, hæmorrhagic, and when first obtained of a dark, blue-black colour. Such a condition might, in the presence of any wandering suppurative micro-organisms, be the origin of a localized or indeed of a generalized peritonitis.

Dr. JAMES BELL, speaking of the last case, said that he had been called to the country to see the patient on October 4th. There had been symptoms which set in suddenly and acutely nine days before, and a mass could be felt in the abdomen on deep pressure, which was thought by her physician to be a uterine fibroma. Just before he arrived at the house the patient fell into a condition of collapse, and no operation was then performed. She, however, rallied and was brought down to the Royal Victoria Hospital the next evening. The abdomen was then opened and a Littré's hernia found. There was free pus in the peritoneal cavity, but no fæces. A perforation had taken place, probably when the collapse occurred thirty-six hours before operation. The bowel was closed by a double layer of Lembert's sutures. For two weeks the patient did well, then for a week there was vomiting, but without other signs of obstruction ; fæces and flatus passed freely. Calomel was given, which produced a copious evacuation of the bowels. The cause of death was not obstruction in the ordinary sense, and the only explanation he could offer was that suggested by Dr. Adami, viz., that on account of the

long obstruction the vitality of the tissues of the bowel wall was lowered, as well as the general vitality of the patient, and thus the colon bacillus was allowed to escape into the peritoneal cavity.

Experimental Removal of the Thyroid Gland.

Dr. D. J. Evans showed for Dr. Wesley Mills, who was unavoidably absent, the dog that had been exhibited in good condition at a previous meeting, though one-half of its thyroid gland had been removed two weeks before. Four days prior to the meeting, the other half of the gland had been removed. The dog since the operation had been fed on bread and milk, no meat, as the latter is thought to hasten the onset of the cachexia. He had been given one thyroid tablet (Armour's) containing two grains of desiccated thyroid on the day of the operation, and three every day since. On the second day after the operation the usual symptoms of the cachexia appeared in characteristic form and had been present since, though, as they were intermittent, the cachexia was not very evident at the time the dog was before the Society. In this case the tetanic spasms and other nervous symptoms had been more pronounced than the dyspnœa. Emaciation was moderate. Another healthy intact dog was being given thyroid tablets as a control experiment. Dr. Mills proposed to report the results in these cases to the Society later.

Notes on the Medical Examination and Measurement of Athletes.

Dr. R. Tait McKenzie read a paper on this subject. (See page 496.)

Dr. T. D. Reed thought that the work done by Dr. McKenzie was very valuable and should be encouraged. He had himself done work of a similar kind, but of a more elementary character, among the lady pupils at the McGill Normal School. The average age, he found, was 19, the height for the present year 5 feet 3 inches, which was an inch more than the generally accepted average for the age; the weight 123 pounds. The length between the finger tips with the arms stretched out to the fullest extent was half an inch less than the height, on an average. The spirometer gave an average vital capacity of 133 cubic inches, the extremes being 100 and 180 cubic inches. One pupil in nine he had found myopic; hearing and colour sense invariably good, thus in 200 tested he had found no instance of colour blindness, and this condition, he thought, must be very rare in women. The muscular power of the hand averaged 33 for the right hand and 30 for the left, varying between 11 and 80. In the whole 200, at the average age of 19, only one had perfect teeth, and she had not yet erupted her wisdom teeth.

Dr. D. J. Evans had examined the members of the Y. M. C. A.

before they were allowed to work in the gymnasium. They were principally young mechanics and clerks from sixteen years of age upwards, and he was astonished to find the number that were unfit to take active exercise. A great number had rapid pulse, a few were below 70, but the greater number over 100, even after sitting still for some time, and the pulse was also intermittent in a number of cases.

Dr. W. S. Morrow asked Dr. McKenzie if he put cycling among those exercises which he classed as moderate, and if so, why? He thought that if one allowed a young man to ride a bicycle one could not restrict him to slow riding. His own opinion was that cycling brought about a very rapid action of the heart.

Dr. Shepherd congratulated Dr. McKenzie on a paper that introduced a subject new to the Society. It was of the highest importance that every school and university should insist on a medical examination of the pupils and students. Many boys were totally unfit to play games, especially violent games like football. As a rule, he thought that athletes did not succeed in medicine, they were shorter lived than others, and did not seem to have the reserve force that those who led a more sedentary life possessed.

Dr. J. G. Adami could not agree with Dr. Shepherd's in decrying the value of athletics for medical students. As a class they needed and demanded exercise. It was noticeable that in every university having a medical school the "meds" led in strong sports like football; that strong men with strong vitality naturally tended to study medicine; that strong, athletic men were required for our profession, and we got them.

Dr. Shepherd said that he did not refer to the average student, but to the extreme athletes. It was not the great book-worm nor the great athlete, but the man of medium type who would succeed.

Dr. J. C. Cameron thought Dr. McKenzie was to be very much congratulated upon his interesting and important paper. He thought of even greater value was the suggestiveness of the paper. While all were agreed that exercise is useful and often essential, its value as a therapeutic agent had not been realized or properly utilized. With regard to diet, most physicians would not deal in generalities merely, but would consider it necessary to indicate what particular articles should be taken and what should be avoided. But with regard to exercise they were too often content to advise their patients to take more exercise, or to avoid violent exercise, without specifying the amount and kind of exercise which should be taken or avoided. But in order that suitable exercises may be prescribed for different pathological conditions, physicians must have clear ideas respecting the

various convenient combinations of movements and their therapeutic effect. In this respect the paper of the evening was of great value on account of its suggestiveness. He hoped that Dr. McKenzie would continue his investigations, and that the university would recognize their importance and provide him with a well-appointed gymnasium and proper facilities for carrying on a work for which he had shown himself to be so eminently fitted.

Dr. J. B. McConnell said that this paper opened up a large subject much neglected by the medical profession as a whole, and he was glad to see that one of the members was devoting his attention to it. It was of importance in our universities to have the physical training of the students looked after, but of even greater importance to have it looked after in the public schools, and a perfect system of exercise, he felt, would bring a great change in the standard of health; of equal importance also would be a proper physical examination of each pupil in regard to the condition of all the more important organs of the body, especially those of sight and hearing. He also congratulated Dr. Reed upon his work, as he thought that the need of proper exercise was more felt among women than among men. The female sex suffered from want of it, and were thus often improperly developed.

Dr. R. C. Kirkpatrick had assisted in the examination of the young men in the Y. M. C. A., and what struck him most forcibly was that frequently one shoulder was higher than the other. This deformity was probably due to standing at a desk, or had been acquired at school. Children should be made to stand and sit squarely at their desks, and they should be examined from time to time, so that any incipient curvature might be remedied.

Dr. R. T. McKenzie, in reply to Dr. Morrow, said that he had classified cycling among the moderate exercises, as it did not require the prolonged strain on the heart which holding the breath, as during heavy lifting, entailed. It was not within the power of a wrestler or a football player sometimes to avoid a severe strain, but the rider could at any time relax his efforts.

In reply to Dr. Shepherd, he thought a young man must use up his superabundant vitality in some way, and that athletics was the best form. It has been found that the athlete is a little above the average man in scholastic attainments.

The drooping of one shoulder, referred to by Dr. Kirkpatrick, was in all probability chiefly due to the cause mentioned, a faulty position at the desk. In only one case had he found drooping of the left shoulder.

Two Cases of Renal Calculi.

Dr. J. A. Macphail showed for Dr. J. A. Springle, specimens of renal calculi removed during the previous week at the Western Hospital. The first was an oxalate stone, weighing two ounces, taken from the kidney of a man aged 65 years, who had suffered from it for over thirty years. The second specimen was a right kidney removed from a woman of 28 years, who had complained of colic and other symptoms of kidney stone for five years. Perirenal abscess existed, with protrusion of a calculus through the pelvis of the ureter. The kidney substance was considerably injured by four other calculi in the sinus of the organ itself. The stones consisted of oxalates and phosphates and weighed three ounces.

Dr. Springle was not altogether satisfied that the removal of the kidney in this case was above all criticism, yet the condition at the time of operation seemed to give no other alternative.

Carcinoma of the Liver.

Dr. J. A. Macphail showed two specimens obtained at an autopsy upon the body of a woman 67 years of age in the practice of Dr. McConnell. The one was a liver weighing twelve pounds thickly sown with nodules of alveolar carcinoma, the other a virginal uterus carrying four subserous fibromata.

Dr. Macphail thought it worthy of note that this patient was unconscious by sign or symptom of either of these conditions until they were related to her by her physician four days before death.

Dr. A. L. Smith referred to a case which he had had a year or two before in which a cancerous liver had grown to such a size that it reached down to the edge of the pelvis and almost filled the abdomen. Although the case was hopeless, he had called Dr. Finley in consultation in order to verify the extraordinary size of the organ.

Stated Meeting, November 29th, 1895.

A. D. Blackader, M.D., President, in the Chair.

Dr. D. A. Hart, of St. Lambert, Que., and Dr. L. C. Prevost, of Ottawa, Ont., were elected ordinary members.

Additional Cases of Pyocyaneus Infection.

Dr. J. G. Adami exhibited cultures made from these cases and gauze dressings showing the characteristic blue colour, and Dr. Kenneth Cameron reported the history of one of the cases, which will appear next month.

Pyæmia in a Dog.

Dr. C. F. Martin exhibited the specimens, which he described as follows:

The specimens here presented were removed from the body of a dog which died recently at the Hospital of the Faculty of Comparative Medicine. His symptoms were those of some septic infection and the diagnosis of pyæmia was made, the cause being attributed to an injury to and subsequent operation upon the tail.

An autopsy revealed a much enlarged and hæmorrhagic spleen, in which were multiple minute abscesses. The kidneys were enlarged, had a pale surface and widened fatty cortex, in which were many hæmorrhages and some necrotic and hæmorrhagic infarcts. Numerous small abscesses were distributed over the cortical portion of the organ. The liver was congested and showed small areas of necrosis. The heart contained a large amount of dark semi-fluid blood. The aortic valves were somewhat thickened and manifested evidence of vegetative malignant endocarditis, as well as several deep ulcers, some at the free edge of one of the valves, and others at the attached margins. The latter encroached to some extent upon the myocardium. There was no evidence elsewhere of disease in the viscera. The lungs were normal. On examination, the stump of the tail showed a condition of thrombo-phlebitis.

Microscopic examination of the organs verified gross appearances. The condition was one, therefore, of infection chiefly of the systemic circulation, while the pulmonary system remained practically free. Inasmuch as the conditions under which the autopsy was performed did not favour a bacteriological examination, no satisfactory report can be given in this respect. The bacteria present were, however, cocci arranged in irregular groups, never in chains, and had the usual appearance of staphylococci.

The case is recorded and specimens shown inasmuch as the literature on such conditions in dogs is remarkably deficient, and text-books do not even mention the possibility of such an occurrence.

Dr. Wesley Mills gave the following history of the dog from which the specimens exhibited by Dr. Martin had been taken :

A spaniel whose tail had been injured by a street car was brought to the hospital of the Faculty of Comparative Medicine for treatment some time after the injury. The stump was foul and amputation was performed about four inches from the root. The wound not healing well there was another amputation eight days afterwards, antiseptic precautions being taken during both operations. The animal seemed to be doing well till the morning of the fifth day, though its appetite was not as good as could be desired. At the date referred to, the temperature was 104° F., and the dog was dull and generally out of condition. Alcoholic stimulants and beef tea were administered, but

to no purpose, and death took place on the following morning. The diagnosis of blood poisoning had been made.

Dr. Mills further reported the case of a pure-bred pointer bitch that died from the same malady, the only source of infection discoverable being a small wound resulting in a very small abscess on the mammary gland. The illness was of short duration, and few evidences of gross lesions were found post-mortem.

Recently he had seen a case which he did not doubt was pyæmia. The animal, a small Irish terrier, had received a few small wounds about the neck and shoulder in a fight, one of which had gone on to abscess formation. The bitch had rapidly lost flesh and was in bad condition generally. The abscess was opened and cleansed. The animal recovered, but regained its former condition only after several weeks.

From the cases he had seen Dr. Mills would conclude that in the dog the disease is readily induced and very dangerous, but occasionally recovered from under proper treatment. The symptoms and pathological changes are very like those in man, as would be expected in animals so closely related physiologically, and it was to emphasize this physiological and pathological resemblance that he had reported these cases so soon after the fatal case in man, brought before the Society by Drs. Hamilton and Martin.

Two Cases of Mycetoma Pedis.

Dr. J. G. Adami exhibited the specimens. (See page 485.)

Dr. F. J. Shepherd said he was much interested in these cases. Fifteen or sixteen years before he had had a case of what he now knew to be Madura foot. It was painless, showed a number of sinuses with fungating borders, and was looked on as a case of general necrosis. The man was a native of this country and had never been out of it. He had refused operation at the time and has not been heard of since.

Tumour of the Lung.

Dr. J. G. Adami exhibited the specimen. (See page 510.)

Six Year's Experience in Abdominal and Pelvic Surgery.

Dr. Lapthorn Smith read a paper on and presented a list of all the abdominal sections he had performed up to the 20th November, 1895, to the number of 143, with 11 deaths. Of these, all but eight, which were performed at the patient's own home, were done in public or private hospitals.

The death rate was shown by comparison of the statistics of each year to have been gradually reduced from 17% in 1892 to $3\frac{1}{2}$% in 1895; the number of cases operated on had increased very considerably. The rate for the whole time was $7\frac{1}{2}$ per cent.

These abdominal sections were performed for the following reasons:

	Cases.	Deaths.
Removal of large tumours of the kidney by the abdomen	2	0
Extra-uterine pregnancy	3	0
Large ovarian tumours	8	1
Abdominal hysterectomy	11	3
Ventral or umbilical hernia	7	0
Obstruction of bowels of long standing	2	2
General peritonitis following miscarriage	1	1
Tubercular peritonitis	2	0
Large cancerous tumours of ovaries	1	0
Puerperal septicæmia, cleaning out pelvic abscess	1	0
Ruptured pus tubes	1	0
Removal of appendages for fibroid tumours	4	0
Pus tubes	42	3
Cystic ovaries and chronically inflamed tubes	9	1
Hydrosalpinx	6	0
Ventrofixation, including rapid dilatation, curetting, repair of lacerated cervix and perineum, and in some cases removal of dermoid tubes and ovaries	43	0
	143	11

He then gave a detailed account of each case that resulted unfavourably, showing how several of them would probably have been saved, if he had at that time known about the Trendelenburg posture, which has completely revolutionized pelvic surgery and converted disasters into brilliant results. Four of the deaths would have been prevented if the patients had been sent for operation earlier, the death rate being due to longer anæsthesia required in dealing with adhesions, and greater hæmorrhage when tumours had been allowed to become larger before being removed. One of the deaths was due to drainage tube infection; and one to infection by iodoform gauze packing. He no longer uses either of these devices, because they are no longer necessary, for by means of the Trendelenburg posture he was able to tie all oozing points and cover all raw surfaces with peritoneum. Three of the eleven deaths had no connection whatever with the operation, but eight of them were due to the operation. The remote results were then gone into carefully. Three cases of the 132 which recovered from the operation died from the progress of their disease within four months. Of the remaining 129 cases, one is not cured, having still an acrid discharge from the uterus, which may necessitate the removal of that organ, and 3 cases of ventrofixation are only partially cured, because they had only one ovary and tube removed when both were diseased. The latter patients now regret having insisted upon keeping an ovary in, and intend to have a second operation eventually. The remaining 125, which have nearly all been seen within the past year, are apparently cured, and many of them are in robust health. The most gratifying results were obtained from the six combined

operations at one sitting, including ventrofixation, performed on 43 women. The removal of the appendages for fibroid tumours was also highly satisfactory ; the reader thought that the operation should be preferred to hysterectomy in all cases in which, by reason of the size of the tumour, the total removal of it promised to be extra hazardous The two women whose abdomens were opened for puerperal septicæmia, in the one case the septic uterus being removed, and in the other a large pelvic abscess, walled in by omentum, being cleaned out and a large piece of omentum being removed, made excellent recoveries and are now alive and well. The former was the first case recorded in Canada of removal of the uterus for puerperal septicæmia. The removal of pus-tubes also gave excellent remote results, women who had been chronic invalids for years regaining their health and strength in a few months after the cause of their trouble had been removed. The operations, which had always been very difficult, did not, however, prove to be so fatal as he would have supposed. Two of the patients were brought to the hospital in an ambulance with an attack of peritonitis in full blast, and yet they made excellent recoveries after removal of the pus sacs. Even many cases in which the pus-tubes ruptured during removal, as well as one case in which the tube ruptured at the patient's home several times before operation also made good recoveries. One of the extra-uterine pregnancy cases walked out of his private hospital against advice on the twelfth day day, and another from the Western Hospital on the fourteenth day, and yet made perfect recoveries. He felt convinced that if all these cases were operated on before rupture, or soon after the first rupture, they would all recover.

As far as the effect upon the sexual feelings of the women was concerned, the patients might be divided into three almost equal classes : First, those who, after the operation, gradually lost all the sexual feeling which they had previously possessed ; second, those who never experienced it either before or after the operation ; and third, those who had never known sexual pleasure before the operation, but gradually experienced it more and more after the diseased ovaries had been removed. About half of the latter have now strong sexual appetite several years after the removal of both ovaries, Although his experience in abdominal section for removal of large diseased kidneys was so limited, he was very much in favour of this route because it enabled the operator to ascertain whether the patient had another kidney, and also because it allowed him plenty of room to see what he was doing and to do good clean work. One of the patients was 65 years old at the time of the operation and is now nearly 70 years old

and in perfect health. He strongly advocated leaving in the silk-worm gut sutures which close the abdomen, for thirty days ; since he has been doing this, now some three or four years, ventral hernia following operation has almost become a thing of the past. He attributed his increasing success and diminishing death rate, 1st to the Trendelenburg posture ; 2nd, to the A.C.E. mixture and quick operating requiring less anæsthetic ; and 3rd, to his assistants and nurses being better trained and more thorough believers, as he was himself, in *absolute asepsis* from beginning to end.

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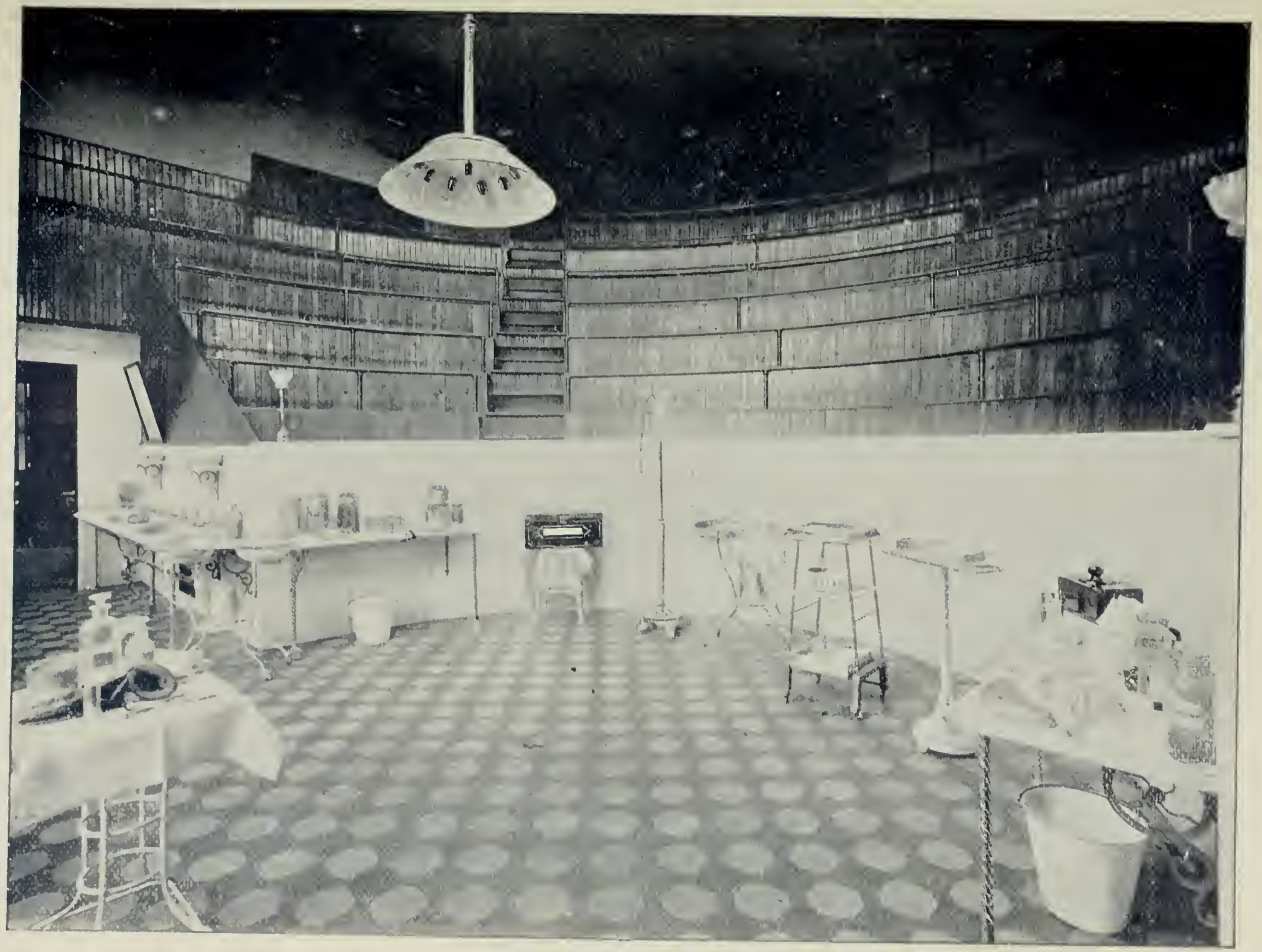
MONTREAL GENERAL HOSPITAL.

Our readers will doubtless be glad to learn that the old Montreal General Hospital, where so many of the medical men now engaged in active practice in Canada and the United States received their clinical instruction, has been transformed into a large and well appointed institution, a monument to the generosity of Montreal's citizens.

During the past five years over two hundred thousand dollars have been expended in the erection of new buildings and the remodelling of old ones.

Entering the hospital by a handsome portico supported on Grecian pillars we are ushered at once into the entrance hall or lobby. This is exceedingly spacious and handsome. The floor is of white marble, relieved by a pattern of small red tiles; the walls are delicately tinted and protected from injury by a burlap dado; the ceiling is supported by polished ash pillars, and altogether it is hard to imagine a more convenient or more tastefully arranged entrance for a hospital. Artistic benches are plentifully provided for the accommodation of the large number of people who come here on visiting days to enquire after their friends. Opening from this hall on the right is a large and well lighted office for the Medical Superintendent, on the left is the porter's box. A handsomely furnished reception room has been provided by the thoughtfulness of the committee of management, and the attractiveness of this room has been much enhanced by several oil paintings of considerable merit, presented by the President of the hospital. The entire ground floor of the east or Richardson wing has been made into a board room large enough to accommodate all the governors of the institution, nearly five hundred in number. The walls of this room are adorned by portraits of many of those who in the past have shown their friendship to the hospital—several mem-



OPERATING ROOM.

bers of the Molson family, the Hon. Justice Reid and his wife, John Redpath, Thomas Morland, Dr. R. Palmer Howard, a life-size portrait of Peter McGill, brother of James McGill the founder of McGill University, and many others.

The old staircases have all been removed and in their stead has been erected a fire-proof tower containing a spiral staircase and an elevator shaft. The elevator is sufficiently large to take in a bed or stretcher and runs from the basement to the top flat.

The ground floors of the Reid and Morland (west) wings have been arranged for the house staff, the private patients being accommodated on the floor above. Thanks to the kindness of the Medical Board the nucleus of what we hope will become in the near future a valuable consulting library has been formed and has been placed here within easy access of the resident and attending staffs.

On the first and second floors equally great changes will be observed. The small wards have been cleared out and their place taken by large, light, cheerful rooms. The bath-rooms and closets have been placed in towers built for that purpose in order to escape the danger of having soil pipes inside the walls of the building. The plumbing and sanitary arrangements are the best that could be obtained and are proving thoroughly satisfactory.

A large clinical laboratory has been provided. This room is supplied with all the apparatus and chemical reagents necessary for the examination of urine, sputum, etc. Students are required to conduct for themselves chemical and microscopical examinations in connection with the cases which they are reporting. This is becoming a very important part of a physician's work, and the practical training here received should prove invaluable to them in after life.

The new gynæcological operating room occupies the place of the old operating theatre. This is a particularly bright and cheerful room, with a good light, marble floor and dado, which can be freely flushed with water after each operation and kept thoroughly aseptic. Accommodation is provided for a limited number of students. Adjoining is an instrument and etherizing room.

The upper flat is given up entirely to the nurses as their residence. Here everything is provided for their comfort in the way of well furnished, airy apartments, and a large recreation room containing a piano and a library.

The basement has been asphalted throughout and has been so divided up that in one part special isolating rooms are obtained where any suspected or dangerous case can be kept under observation. A well-appointed dispensary is also situated on this flat, as well as the

out-door department, and a special room for preparing and applying plaster of paris splints, plaster jackets, etc.

The out-door department of this hospital has always been very largely attended. Besides the ordinary medical and surgical clinics, special ones are provided for diseases of women, nose and throat, eye and ear, children, skin and nervous diseases. The report for last year shows that over forty thousand consultations were held in the different departments. This part of the building has been arranged with a special view of affording opportunities for clinical study. There is a small operating room with tiled floor and marble wainscot, a dark room for ophthalmoscopic work, a room with fifteen stalls for laryngology, waiting room, examination rooms, and a complete outfit of instruments and appliances.

At the east end of the hospital a new building has been erected for the pathological department. It is built of cut stone to match the older walls and is two storeys in height. The ground floor is occupied mainly by a large room which is used for religious services, inquests, etc. On the upper floor is a large, well-lighted pathological laboratory; also an autopsy room fitted with a revolving slate table and all the appliances necessary for conducting post-mortems examinations together with an amphitheatre capable of accommodating a large number of students. The refrigerator is on the ground floor and affords accommodation for as many as twelve cadavers. A hoist connects this room with the autopsy room above. There are, besides several smaller rooms which are used as private laboratories and culture rooms. A museum is attached to this department where typical and rare pathological conditions can be studied microscopically. The opportunities for study afforded by this department are unusually great, for during the session there are always a number of medico-legal autopsies, hence the student has an opportunity of seeing the method of examination pursued in determining the cause of death occurring under suspicious circumstances. Another opportunity for study is afforded by the fact that all the bacteriological work in connection with the civic infectious hospital is done in this laboratory. This hospital is under the management of the Society of the Montreal General Hospital, and is placed in a separate building situated on the outskirts of the city. About eleven thousand dollars have been expended in building and equipping the pathological department, and it has been found to be splendedly adapted for its purpose.

The kitchen, laundry and the dining-rooms for the resident staff, the nurses and the servants are in a separate building arranged for that purpose. In this way the smell of cooking and of washing is

avoided and the air of the hospital is consequently much pleasanter. Covered glass corridors connect this building with the main building which we have just described.

The surgical part of the hospital is contained in two pavilions for the reception of patients and, connecting these, a surgical amphitheatre. These buildings were finished over three years ago and afford a splendid example of modern hospital construction. In the centre building the basement is given up to the boiler and engine room. A battery of four boilers supply steam to the entire hospital for heating and cooking. Here also are situated the fans by which the system of forced ventilation is kept up. A word about this may not be out of place here. The cold air is drawn into the building through a filter of cotton which removes the soot and dust, it then passes over pipes which are set vertically in order to avoid condensation and are heated by steam at high pressure; thence the fans force it into the tunnels which convey it to the wards which it enters near the ceiling, while the vents for its escape are situated near the floor. In this way the ventilation is thoroughly carried out, the air being changed every ten minutes, and the wards are heated at the same time, a matter of great moment in this climate of extremes. The ground floor contains a large cloak room for the students, with toilet rooms attached, a waiting room for the surgeons, rooms for admitting ambulance cases, etc. The floor above is given up to the operating room with its service rooms. The amphitheatre has seating room for four hundred students and the operating space is very ample. Massive slabs of white marble divide the one from the other, the fixed tables for the display of instruments and dressings being of the same material supported upon nickel-plated metal rods. The floor is of red and yellow tiles, and the result has been to make this a place where operations can be conducted according to modern principles of asepsis. To the right is the room where the patients are etherized and prepared for operation, and opening out of this is the sterilizing room where the dressings are prepared. To the left are the robing and wash rooms for the surgeons, recovery rooms for male and female patients, splint rooms, and accommodation for the nurse in charge. The service of this department is very active, the three ambulances attached to the hospital bringing in a great many accidents, as the hospital is situated in the heart of the manufacturing and business part of the city. Last year's report shows that more than five hundred major operations were performed during that period.

The pavilions, two in number, run back towards the south and are separated by a lawn seventy-five feet wide. They are built of pressed

brick and consist of a ground floor for the accommodation of servants and two floors above, each containing one long ward (132 × 38 × 16 feet), two private wards, kitchen and bath room. In each of the four public wards there are twenty-five beds, thus giving 100 surgical beds, besides which are a number of private wards. These latter are newly furnished in oak. The wards are well proportioned and lighted from both sides, thus giving cross ventilation in summer and abundance of sunlight in winter. The ceilings and walls are painted in oil to allow of thorough cleaning; the furniture and bedding are new, so that it is difficult, with the general brightness of everything, to imagine anything better or more suitable for the purpose.

In conclusion, a few remarks about the resident staff and their work. The charge of all departments is vested in the Medical Superintendent. Under him are six resident and one non-resident medical officers, who carry out the directions of the attending physicians and surgeons.

Connected with the hospital is a large training school for nurses, modelled after the training school in connection with the New York Hospital. The nurses all receive a thorough training in medical and surgical nursing, and steps are now being taken to afford them also a training in maternity work, and in the near future the nurses graduating from the Montreal General Hospital Training School will have the triple qualification. The applicants for positions in the training school are from a very superior class, many of them undertaking the work more for the love of it than as a qualification for the gaining of a livelihood, although the demand for their services after they have left the hospital is often greater than can be supplied.

There were last year admitted to the wards of the hospital 2,342 patients. The death rate was 4·9 per cent., which is very low, when the number of desperate cases who die within twenty-four hours after admission is considered.

The bedsteads and bedding, and in fact all the hospital furniture are new, and a prosperous era is expected.

A DOCTOR OF THE OLD SCHOOL.[1]

It is with unfeigned pleasure that we view the appearance of this section of Ian Maclaren's delightful "Bonny Briar Bush," containing, as it does, not only one of the finest creations of character in modern literature, but also a creation warming the hearts of the members of our profession. Perhaps it is wrong to speak of Weellum MacLure

[1] By Ian Maclaren, with illustrations by Frederick G. Gordon. Toronto: Fleming H. Revell & Co. 1895.

as a creation. We, knowing our *confrères* in the old country and in this Canada of ours, know that Weellum MacLure is more truly a likeness, and in a kindly little preface to this new edition, the author acknowledges as much. " To answer a question," says he, " that has been often and fairly asked, Was there ever any doctor so self-forgetful and so utterly Christian as William MacLure ? To which I am proud to reply, on my conscience, not one man but many in Scotland and in the South country. I will prophecy also across the sea."

It warms our hearts to feel assured that the profession we love is capable of producing, and is ever producing, men like the doctor of Drumtochty. And in the days when our spirits are low, and we doubt whether the world appreciates us : when hours of care appear only to be repaid by forgetfulness, or by a desire not to obtrude the thought of unpaid debts upon us, it is pleasant to meet with those who read into the doctor, what he would be and what he tries to be.

Who can read, without being more deeply stirred than he cares to acknowledge, perhaps even to himself, the doctor's night with Drumsheugh at Saunders' cottage, and the fight with death ; and who of us cannot picture vividly the visit of Sir George to the glen, and the great operation. Altogether, if there be any members of our profession who have not read the book, we counsel them to read it forthwith, aye, and we counsel their patients to do the same. In talking thus of the doctor, we have for the moment neglected the doctor's horse, who is in her way almost as fine a creation as the doctor himself, and who like him, has been most sympathetically rendered by the artist. In short, the illustrations to this exquisite little volume are thoroughly in keeping with the high standard of the book, in every other respect.

THE JOURNAL OF EXPERIMENTAL MEDICINE.

A suitable medium for the publication of articles embodying the results of original research is one of the most important conditions of fruitful scientific activity. The investigator in any department of science not only must know where to look for the literature of his own subject, but he needs a journal which shall furnish prompt and worthy publication of his own work, which shall supply good reproductions of all needed illustrations, and which by the character and excellence of its contributions shall circulate widely among all workers in the special fields of research embraced within its scope.

Within recent years scientific medicine has made great progress in this country. The standards of medical education have been elevated, well equipped laboratories devoted to the various medical sciences have been established and the number of well trained investigators has steadily increased. With these greater opportunities the contri-

butions to the medical sciences by American investigators are rapidly becoming more numerous and important.

Hitherto we have been deprived of the great assistance which can be rendered by a journal devoted exclusively to the medical sciences above specified. We ourselves, and still more foreigners, do not know where to look for many of the widely scattered original contributions of American investigators to physiology, pathology, bacteriology and other medical sciences. A large part of these contributions are published in journals devoted mainly to the practical branches of medicine. Much of the best work is now sent to various scientific journals of Europe.

The time has come when we should have an American journal devoted exclusively to the publication of original work in the experimental medical sciences. Such a journal is an urgent need of our scientific workers in medicine. It should secure both here and abroad due consideration of work done in this country. It should stimulate scientific investigation and should extend the influence of scientific medicine. The practitioner who wishes to keep abreast of the times will appreciate the value of such a publication.

It is the aim of *The Journal of Experimental Medicine* to meet the needs which have been described. The journal is to be devoted exclusively to the publication of articles containing the results of original work in physiology, bacteriology, pathology and the other sciences mentioned in the first paragraph of this announcement. Especial care will be taken to supply good illustrations whenever needed.

That the journal will be of high character and truly representative of scientific medicine in this country is assured by the character of those whose co-operation has been secured. It is believed that the interest in scientific medicine in this country and the desire both here and abroad to find readily accessible the publications of American contributors to the medical sciences will secure a large list of subscribers for the support of the journal.

Dr. William H. Welch, Professor of Pathology in the Johns Hopkins University, is to be the editor of the new journal, and with him will co-operate a board of twelve associate editors as follows:

For Physiology—H. P. Bowditch, M.D., Professor of Physiology, Harvard University; R. H. Chittenden, Ph. D., Professor of Physiological Chemistry, Yale University; W. H. Howell, M.D., Ph. D., Professor of Physiology, Johns Hopkins University.

For Pathology—J. George Adami, M.D., M.R.C.S, Professor of Pathology, McGill University; W. T. Councilman, M.D., Professor of

Pathological Anatomy, Harvard University; T. Mitchell Prudden, M.D., Professor of Pathology, Columbia College.

For Pharmacology—John J. Abel, M.D., Professor of Pharmacology, Johns Hopkins University; Arthur R. Cushny, M.D., Professor of Materia Medica and Therapeutics, University of Michigan; H. C Wood, M.D., Professor of Materia Medica, Pharmacology and Therapeutics, University of Pennsylvania.

For Medicine—R. H. Fitz, M.D., Professor of the Theory and Practice of Physic, Harvard University; William Osler, M.D., F.R.C.P., Professor of Medicine, Johns Hopkins University; William Pepper, Professor of the Theory and Practice of Medicine, etc., University of Pennsylvania.

Besides the editorial board named above a number of gentlemen have consented to assist as collaborators, and among them are two Canadians, Wyatt Johnston, M.D., Pathologist to the Montreal General Hospital, and J. J. Mackenzie, B.A., Bacteriologist of the Provincial Board of Health of Ontario.

The journal will appear in at least four numbers during the year and, doubtless, oftener. Whenever sufficient material is ready a number of the journal will be issued. A volume of six or seven hundred pages will be published annually, with many plates and diagrams.

McGILL MEDICAL LIBRARY.

The Medical Faculty of McGill University has long been in possession of a large and valuable special library, but until recently its use has been almost entirely confined to the members of the college staff. With a view of rendering the library more generally useful a reading-room has lately been opened, and the Faculty cordially invites physicians resident in the city to avail themselves of it.

It has been the aim of the Faculty to make the library as complete as possible in current medical literature. The leading periodicals are on file and back numbers are readily consulted, whilst the most important medical works are on the shelves. The books are at present being re-catalogued and arranged in accordance with modern methods by a trained librarian, a work which will greatly facilitate the use of the library. The hours of attendance are from 10 a.m. to 6 p.m.

The intelligent interest taken by McGill University in athletic sports, as outlined by Dr. Tait McKenzie in another page, is timely and important and is another evidence of the desire on the part of the University to develop her undergraduates into well educated, well

trained and manly graduates. Outdoor athletic sports form a not unimportant part of the University training, and when properly conducted under the supervision of an experienced physician should result in much good. There has always been a danger that young men suddenly changing their mode of life, from perhaps one involving great physical activity to the sedentary life of a college student, should thereby suffer in health. Athletic sports tend to encourage out of door exercise, and by insuring a better physique, enable the student to do better brain work. The advantages are very tersely stated in a pamphlet by President Hartield, who says:—"Most outdoor games, not merely strengthen the limbs, give certainty to the movements, make the hand skilful and the eye sure, but also give great command to the will over the actions of the body. A true athlete cultivates self control, prudence, discretion, and later also the higher virtues of sobriety and chastity." It also enables him, in the language of Holmes, to determine his "weight of metal and his size of ball." It should not, however, be an object in athletic sports to furnish material for surgical clinics. Injuries to wind and limb are becoming only too frequent. Joint injuries are occasionally received that incapacitate the player for weeks and months, and unfortunately fatal results are not unknown. This rough play, which may cause serious accidents, is not sport. The true sportsman should take more pleasure in the exhilaration of contending than in the winning, and it is to be earnestly hoped that fine scientific sport may be soon purged of that violent play that causes physical injury.

E. B. Treat, Publisher, New York, has in press for early publication the 1896 *International Medical Annual*, being the fourteenth yearly issue of this eminently useful work. It will be the conjoint authorship of forty distinguished Specialists, selected from the most eminent Physicians and Surgeons of America, England and the Continent. It will contain reports of the progress of Medical Science at home and abroad, together with a large number of original articles and reviews on subjects with which the several authors are especially associated. In short, the design of the book is, while not neglecting the Specialist, to bring the general practitioner into direct communication with those who are advancing the science of medicine, so that he may be furnished with all that is worthy of preservation, as reliable aids in his daily work. Illustrations in black and colours will be used wherever helpful in elucidating the text. Altogether it makes a most useful, if not absolutely indispensable, investment for the medical practitioner. The price will remain the same as previous issues, $2.75.

We have pleasure in publishing the following programme for 1895-96 of the Medical Society of Ottawa. We hope to be favoured with a contribution occasionally: Oct. 25, President's Address, Dr, J. A. Grant, Jr.; Nov. 8, A Trip among the Abdominal Surgeons of New York, Dr. L. C. Prevost; Nov. 22, Appendicitis—when to operate, Drs. H. P. Wright and R. W. Powell; Dec. 13, Anæsthetics: Chloroform, Dr. H. B. Small; Ether, Drs. C. J. H. Chipman and A. T. Shillington; Dec. 27, Acute Uræmia, Dr. W. Troy; Puerperal Fever, Dr. A. Jamieson; Jan. 10, Diphtheritic Antitoxin, Drs. A. Robillard and W. C. Cousens; Jan. 24, Paraplegia, Drs. J. E. Rogers and A. A. Henderson; Feb. 14, Cranial surgery in relation to pyogenic infective disease of the ear, Dr. A. J. Horsey; Feb. 28, Surgical diseases of the knee joint, Drs. P. A. McDougall, Sir James Grant and O. C. Edwards; March 13, Coal Gas Poisoning, Dr. J. W. Shillington.

The College and Clinical Record will be hereafter known under the name of *Dunglison's College and Clinical Record: A Monthly Journal of Practical Medicine.*

W. J. Bradley, M.D. (McGill, 1888), has been admitted a member of the Royal College of Surgeons of England.

NEW BOOKS, ETC., RECEIVED AND NOTED.

An Essay on Malaria and Its Consequences. By Robert Lindsay, A.M., M.B., etc. London: H. K. Lewis.

A Manual of Syphilis and the Venereal Diseases. By James Nevins Hyde, A.M, M.D., and Frank H. Montgomery, M.D. Philadelphia: W. B. Saunders.

Notes on Surgery for Nurses. By Joseph Bell, M.D., etc. Edinburgh: Oliver & Boyd.

Consumption; Its Nature, Causes and Prevention. By Edward Playter, M.D. Toronto: William Briggs.

On the Localization of the Foramina at the Base of the Skull. By Edward Fawcett, M.B., C.M., Edin. Bristol: J. W. Arrowsmith.

A Manual of the Practice of Medicine. By George Roe Lockwood, M.D. Philadelphia: W. B. Saunders.

Craniectomy; an Improved Technique. By A. H. Meisenbach, M.D. Reprint from the Journal of the American Medical Association.

Insured Lives as Affected by Gout. Syphilis as Affecting Life Insurance Risks. Reports on Asthma and on Biliary and Renal Colic and Calculus. Published by the Mutual Life Insurance Company of New York.

Seventeenth Annual Report of the Frazer Institute.

The Johns Hopkins Hospital Reports. Report in Pathology, IV.

Traumatic Separation (compound) of the Lower Epiphysis of the Femur. By A. H. Meisenbach, M.D. Reprint from Medical Record, October 5, 1895.

Removal of Ingrowing Toe-nail. By A. H. Meisenbach, M.D. Reprint from St. Louis Medical Review, July 27, 1895.

The Technique of Tenotomy of the Ocular Muscles. By Leartus Connor, A.M., M.D. Reprint from Journal of the American Medical Association, Nov. 2, 1895.

Urethroscopy in Chronic Urethritis. By Fred C. Valentine, M.D. Reprint from Medical Record, August 3, 1895.

Report of the Board of Health of the Province of Quebec, 1895.

Bulletin 48—Report on Crops, Live Stock, etc., in Manitoba. Winnipeg, Dec. 10, 1895. Issued by the Department of Agriculture and Immigration.

Practical Urethroscopy. By H. R. Wassidlo, M.D. Reprint from Medical Record, September 7, 1895.

THE

MONTREAL MEDICAL JOURNAL.

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Original Communications.

THE HABIT OF GROWTH.

AN INTRODUCTION TO A DISCUSSION UPON CARCINOMA AT THE MONTREAL MEDICO-CHIRURGICAL SOCIETY, DECEMBER 13TH, 1895.

By J. GEORGE ADAMI, M.A., M.D.

Professor of Pathology, McGill University; Pathologist to the Royal Victoria Hospital.

Frankly, gentlemen, it is impossible to do anything approaching to a discussion of the cause, progress and histological characters of cancerous growths in the time allotted to each of this evening's speakers, and I am bound, therefore, to select one single aspect of the subject for treatment, and even then can at the most touch rather than treat it.

Perhaps that which is of most general and present interest in connection with cancer, both from the point of the pure pathologist and from the standpoint also of the practical man, is the question of the causation of cancer. I say from the point of view of the man in practice, because once the cause of cancer is surely established it is generally held that prevention will be possible. This is the general hope, but for myself I am a little doubtful as to whether this really follows. I am not quite sure that when we establish satisfactorily the ætiology we shall find matters so simple that we can readily abolish or prevent the cause. Even if the condition be of a parasitic development, even if we are able to cultivate the parasite outside the body, and thus gain an intimate knowledge of its life history, I am not wholly hopeful that we can assume upon the analogy of modern bacteriological achievements and feel assured that eventually we can find means of arresting the growth of the parasite, and so of arresting the cancerous process, for, as I shall proceed to show, the *modus*

operandi of the parasite must differ essentially from that of the micro-organisms of ordinary zymotic disease. At the present time the most that can honestly be said with regard to the results of the investigations into the parasitology of cancer is that those investigations have revealed the occasional presence in the cancer cells of a series of very curious bodies. These bodies may be of the nature of sporozoa, they may with perhaps equal plausibility be regarded as the results of endogenous cell degeneration. So long ago as 1889–90 I gave out and demonstrated to my morbid histology class at Cambridge sections of a cancer of the scrotum showing these bodies. I am as much in doubt as to the nature of these bodies to-day as I was then. I leave it to Dr. Martin to bring before the Society the main results of the observations that have been made in this subject so far.

But it seems to me that even if we grant that cancer is caused by this parasite, we have not arrived very much further. In the first place, in all other parasitic and microbic diseases with which we are acquainted, general infection is brought about by the conveyance of the *microbe* from the primary seat of growth to other regions of the body by the lymph or the blood stream. In cancer general infection (a term which in consequence I am inclined to dislike seeing used in this connection, I prefer "metastasis") is essentially associated with a totally different process, namely, the conveyance of *tissue cells*. It is the cells carried to other regions by the lymph or the blood stream that there proliferate, and the secondary growths are in the oldest and strictest sense colonial. Just as the old Greek colonies were established by members of a community who migrated to a distance and there founded a new community of like constitution to the old, but wholly separate and owing no allegiance, so is it with the metastatic cancer growths. Even if in these migrating cells parasites be present, it must be admitted that we are dealing with a new type of infection wholly distinct from that induced by the tubercle bacillus, for example, and as a consequence we cannot predicate that the laws determining the prevention of one will determine the prevention of the other.

In the second place, granting that parasites bear an ætiological relation to cancer, we are still left in the dark as to why parasites induce certain cells of the body to take on a functionless and heterotopic growth. At most we acknowledge that an obscure organism originates aberrant vital processes on the part of sundry cells ; and inasmuch as similar aberrant vital processes are known to take place in other cells without there being any suggestion of similar parasites being present, we are led, I think harmfully, to separate off sharply

conditions which are related, we are led to neglect the attempt to find some common cause for all these conditions, we are led to separate sharply the malignant epithelial growths (I use this term in its broadest sense) from the malignant connective tissue growths; or if this be denied, and the sarcomata be accepted also as of parasitic causation, we are, at least, led to separate all malignant growths from all benign growths; we are conducted, that is, to an *impasse*. For this may be definitely accepted that certain benign growths are wholly unassociated with the presence of any parasite. Take, for example, the little lamellar fibromata to be seen upon the capsule of the spleen, or take the papillomatous overgrowth of the mucosa at the edge of a chronic intestinal ulcer, take the long finger-like down growths of epithelium at the boundary of a chronic ulcer, or the bony overgrowth upon the inner side of the femurs of cavalry soldiers. In all these cases chronic irritation is absolutely sufficient to explain the developments, yet no distinction can well be drawn between these chronic inflammatory hypertrophies and other forms of benign tumours. We must, then, logically admit that functionless and heterotopic cell hyperplasia can be induced without parasitic association; and inasmuch as the benign may pass imperceptibly into malignant growths, and inasmuch as we can, for example, come across lipomata showing transition into sarcomata, or fibromyomata doing exactly the same, as again we can, in thyroid, encounter what are certainly benign growths—adenomata (the so-called fœtal adenoma)—possessing all the histological characters of carcinomata, the only conclusion to be reached is that a study of the presumed parasite is calculated to lead us only a very little distance.

We must seek deeper than these suppositious parasites if we wish to discover what lies at the bottom of all malignant tumour growth, aye, of all functionless cell proliferation.

Now, that I may prepare you for the train of reasoning upon which I am about to embark, and that you may throughout the ensuing argument see whither it is tending, let me here state the conclusion at which I have thus far arrived from a study of neoplasms and not a little consideration concerning their characters and relationships. Briefly, I cannot but hold that the one fundamental phenomen underlying the development of cancerous and other neoplasms is the assumption of a habit of growth, a habit of rapid cell division independent of external stimulus on the part of certain cells in one or other region of the body.

The power of growth and multiplication is not, it must be borne in mind, something new to the cell. Every cell in the body, we may

safely say, either possesses or has possessed it. In every tissue, to the end of the life of that tissue, there is a constant, even if slow death of certain cells and replacement by cells of the same order, derived by proliferation of cells of that order. There is latent, that is to say, in all the living cells of the body a capacity for multiplication requiring only the necessary stimulus to call it into play. The habit of growth to which I have referred above is an exaggeration, or more exactly, a calling into full activity of this latent capacity.

This latent capacity for growth is much more intense in the vegetable kingdom, and numerous examples might be given in illustration. I need only remind you that if you nip off a piece of a begonia leaf, and place it under favourable conditions, that piece will develop into a complete plant. The cells of this leaf, highly differentiated as it is, have the latent power of orderly proliferation to such an extent that they can reproduce the whole plant.

Among the lower animals the same property is equally well marked. Cut a hydra into, I believe it may be said, almost as many parts as there are cells, and, provided that healthy and intact cells are left in the sections, each portion will develop into a complete hydra. The latent capacity for growth is such that each cell appears to have the potentiality not simply to produce cells of like order, but to reproduce the whole animal.

Ascend higher in the scale, and the latent capacity becomes more limited. In the crustacea for example, the potentiality is restrained to the reproduction of lost parts. Here the cells of various tissues proliferate harmoniously, and every tissue of the lost part is reproduced in proper proportion. Ascend yet higher, and the latent capacity is yet further restricted ; so that in man we observe the following, namely, that only the cells of certain relatively simple tissues possess to any marked degree the power of complete reproduction.

It may be said that all this is trite and commonplace, and it may be asked what it has to do with the pathology of carcinoma. Well, the recapitulation is valuable to this extent that it helps to impress upon us the proliferative capacity of the cells of the body, and the limitations to that capacity in the higher animals. As a matter of fact, it is only in the higher animals in which these limitations have been impressed upon the cells that malignant growth is possible and is found. In lower animals any stimulus to cell proliferation leads to reproduction either of the whole individual or of a complex of tissues

Recognising, then, the existence of this latent power of proliferation on the part of cells with the limitations that I have mentioned,

let me pass on forthwith to its bearing upon cancer formation, leaving aside, from lack of time, any consideration of the development of histoid tumours, even though I do this at the risk of being accused of passing by what is difficult to explain.

While in man we observe, as I have above stated, that only certain of the simpler tissues exhibit any marked power of proliferation leading to complete reproduction, the latent capacity for growth is present all the same, and we notice the appearance of a further and allied phenomenon. We see that under suitable irritation the cells of these higher tissues have not lost entirely their capacity for growth, only that capacity results in a development along somewhat different lines. What I mean can best be studied by observing the conduct of individual units of these higher tissues, either in the attempt at restoration of a muscle or nerve after section, or again, by a study of the processes occurring in glandular structures during the course of an inflammation that is not too intense. Severe inflammation leading, as it does, to active cell destruction is outside our purpose. Now, the most prominent characteristic of a nerve or muscle fibre present in the attempt at recovery after injury is the multiplication of the nuclei of each unit, a multiplication often regarded and spoken of as a degeneration, and indeed not unfrequently such multiplication precedes the actual disintegration of the unit. This multiplication, which I have elsewhere spoken of as "reversionary degeneration," is, I hold, an indication of a reversion to a more primitive type of cell, and indeed in the case of muscle Metchnikoff and others have shown that the individual nuclei resulting from this nuclear division may surround themselves with protoplasm and may pass away as simple embryonic cells, so that the whole muscle fibre becomes completely disintegrated. The process here is one of what may be also termed vital disintegration. The same principle that is shown here is to be seen at work in glandular structures. Take, for example, a case of parenchymatous nephritis. If this be acute the cells of the tubules swell up, show vacuolation and other signs of acute degeneration of the cell substance, with failure of the nuclei to stain properly (or to put it in other words, diminution of the chromatin of their nuclei), and the cells are cast off. With a lesser degree of inflammation the process is very different; we find here that the cells proliferate, but at the same time these new cells do not show the full adult character, their nuclei it is true stain intensely, but their bodies are small and cubical, their characters become more nearly allied to those of the cells in the developing kidney.

Or take the liver. Here in chronic inflammation we find the same

rule to obtain. If we study the comparative anatomy and the development of this organ we discover that it has arisen from a collection of separate acini or finger-like gland follicles. In the adult liver it is impossible to convince oneself of this fact; the cells seem to be arranged essentially in lobules around the branches of the hepatic vein; nevertheless the bile capillaries represent the lumina of the original or primitive gland follicles, and with chronic inflammation, as we see in case after case of cirrhosis, at the periphery of the lobules, the liver cells show the tendency to proliferation, with associated diminution in size; their nuclei stain as intensely as do those of neoplasms, so full are they of chromatin, and these small embryonic cells arrange themselves in a tubular manner, so that we have the appearance of numerous irregular winding ducts running through the new connective tissue formation at the periphery of the lobules—a reversion towards the primitive structure.

Still more instructive is the condition seen in the lung in chronic inflammation. In any case of chronic interstitial pneumonia [this term interstitial pneumonia is unsatisfactory, and a better one is chronic productive pneumonia, for the inflammation affects the parenchyma equally with the interstitial substance]—in any such case, I say, we observe that the result of continued inflammation is to lead to a modification of the epithelium lining the alveoli, so that instead of this being flattened and indistinguishable it is represented by a layer of small cubical cells in all respects resembling the cells lining future air sacs in the lung of the embryo.

In all these cases, therefore, we see this law holding good, that with chronic irritation of moderate intensity the cells of highly organized tissues tend to proliferate and to assume a more embryonic type. So true is this that time and again we pathologists are completely at a loss to give a full diagnosis. We receive from the gynæcologists, for example, scrapings from a womb with a history that there has been long-continued endometritis, and cancer is suspected. We receive from the surgeons portions of tissue taken from the edges of chronic ulcers, and are asked to decide if they be epitheliomatous, and in these and similar cases of so embryonic a type is the cell overgrowth, that it is impossible for us time after time to declare whether we are dealing with inflammation pure and simple or with actual cancerous tissue. I must confess that when I send in the reports upon such cases I still feel apologetic, I feel that the surgeons and gynæcologists have the idea that a pathologist ought to know these matters and ought to be able to give an assured diagnosis. I feel that the said surgeons and gynæcologists will when they read such reports complain that after

all I, the pathologist, am a very weak reed to have to lean upon. And I am glad that now, when I have no doubtful specimen before me to report upon, I can point out to the surgeons and the gynæcologists the state of affairs as it actually is, namely, that it is at times impossible to distinguish between chronic inflammatory and malignant tissue. And the reason, gentlemen, why it is impossible thus to distinguish between the two is that the difference between them is purely one of degree.

There can be no doubt that at times this inflammatory hyperplasia of gland cells—this development of embryonal or sub-adult gland tissue—passes on imperceptibly into cancer. Although it may be urged that in all cases of cancer the history of previous chronic inflammation cannot be obtained, this fact that antecedent chronic inflammation at times either escapes detection or is not present, in nowise weakens what is here stated, namely, that many cases of chronic irritation and long continued inflammation of moderate intensity, affecting epithelial and glandular tissues merge into carcinomatous manifestations. And so far as I can see, the line separating the one condition from the other, is that which separates continent from incontinent cell growth. In chronic inflammation as seen, for example, at the edge of an ulcer, we have a condition of increased blood supply and increased nutrition, and as a result we obtain that cell proliferation already described, associated with reversion to embryonic character, or almost I might state it otherwise and say, that we have reversion to embryonic character with associated embryonic powers of rapid cell multiplication, for the two conditions are inseparable. The only distinction between the inflammatory and the cancerous growth is this, that in chronic inflammation remove the cause of the irritation and the process of abnormal cell growth comes to an end. In cancer, the cells from frequent and rapid multiplication in a more or less embryonic state have gained the habit of growth, of unrestrained growth. It may be also that the vessels going to the region, from long dilation remain distended or have acquired persistent distension; so that even when the primary irritant is removed the part continues to receive nourishment in excess of physiological needs. This, together with paralysed nerve control, may well be factors leading to the first mentioned condition, but before all, it seems to me, that there is to be recognized this assumption of the habit of growth, so that once fully started upon the road of proliferation the cells continue to multiply utterly irrespective of the needs of the organism.

It may be said that this is an assumption on my part, and not

necessarily on the part of the cells, but I would ask you to consider a little before arriving at such a conclusion. The cells of the body, we know, are capable of acquiring other habits ; we know for example that they can acquire a tolerance for sundry drugs ; we believe also now-a-days that acquired immunity for disease is essentially due to the acquirement of another habit, to the accustomance on the part of these cells to the presence of small or weak doses of the products of pathogenic micro-organisms, resulting in the descendants of these cells at a later date being able to withstand, if not actually to be attracted to the products of these same bacteria when present in a more concentrated form. But apart from this support from analogy which, it may be said, is at the most doubtful, we have in the cancer cells clear indications of the assumption of this habit. There is in the first place the undoubtedly embryonic appearance in the cells. Now it is during embryonic life where, under physiological conditions, the cells possess this appearance, that they possess also most characteristically the power of frequent multiplication, that they possess very clearly a physiological habit of growth. Again there is to be noticed the excessive amount of nuclear chromatin. This increase in the amount of chromatin in the nuclei is under ordinary physiological conditions an indication that the cells are undergoing, or are about to undergo, multiplication. In an ordinary cancer, what immediately strikes us, is that all the cells in an alveolus, more especially towards the growing edge of the cancer mass, show a peculiarly intense nuclear staining. Thirdly, the irregular character of the mitosis or indirect cell division observable in cancer cells may in itself be accepted as an indication that the impulse towards division is so strong that the nuclear masses often break into three stars instead of two, or throw off redundant masses. And lastly, what may be termed the intense vitality of the cancer cells is again a character of young growing cells.

It is common to speak of the cells of malignant tumours as being endowed with low vitality. Nothing can be more incorrect. It is indeed true that the more internally situated cells of a new growth exhibit frequent evidence of either necrosis or various forms of degeneration. But those changes are surely to be ascribed not to the lack of vitality of the cells, but to the serious disturbance to the blood supply of the central region of a tumour which almost inevitably follows its eccentric growth. That growth and extension in spite of the pressure of the surrounding organs must also be associated with pressure effects upon the nutrient vessels of the more central area. Compare the cancer cells with those of the surrounding tissues. The latter certainly undergo necrosis and absorption, while the invading

cancer cells show every sign of active growth. The power that these cancer cells have for multiplying in new environment is in itself an evidence of heightened vitality.

It is true that there are certain layers of cells in the normal body which possess a somewhat closely allied intense vitality. The botanists have for long recognized the existence of similar layers in the higher plants and have spoken of them as the "cambium" or cambium layer. I do not know whether with the advance of the gentle science any other name has been given to the strata of the permanently embryonal cells. It would be well if in physiology we had some term denoting the collections of cells of this nature. It is owing to the existenee of these cell layers that we are able to transplant skin and periosteum. In the former the layer in question is the lowest layer of the stratum Malpighi, which throughout life exists in a permanent embryonal condition and which is constantly presenting cell division, and developing new individuals to help to form the epidermis and to replace the scales of dead cells that are constantly being thrown off. In the latter also we have present an analogous layer of permanently embryonal cells. These layers may be said to present throughout life the habit of growth, and it is interesting to notice how peculiarly liable these very cell layers are to become the seat of unrestrainable or unrestricted growth, to manifest malignancy. But under physiological stimuli this excessive growth does not show itself, and under physiological conditions when transplanted, while the vitality of these cells is sufficient to permit of their proliferation when placed in similar environment, when placed in abnormal environment they die, just as any other healthy tissue dies and is absorbed when it is transplanted either subcutaneously or intraperitoneally into another individual. The cancer cells accompanying this power of unrestricted growth have a vitality so intense that when transplanted into widely different regions of the host from the original primary seat of growth they still are able to proliferate, and indeed this intense vitality renders it not impossible that occasionally cancer cells transplanted from one individual may grow in another; but it must be remembered that it is wise not to regard this as a phenomenon of true infection, any more than it is wise to consider the grafting of skin from one individual to another a true infection.

Finally, let me say that that theory is most worthy of acceptance which while being the simplest embraces and explains the largest number of phenomena. As I have shown, the parasitic theory is too limited to be satisfactory. Parasites may possibly be one cause of

chronic irritation and of originating the habit of incontinent cell growth. At most they are one cause; and till their life history has been mastered, till they are found in every cancerous specimen examined with sufficient care, they cannot be regarded as explaining every case of carcinoma.

The theory held by not a few that a weakening of the basement membrane lining the stratum Malpighi and gland alveoli is to be considered as explaining why the epithelial and gland cells invade the surrounding structures, is unsatisfactory in that it is only applicable to carcinomata, and has no bearing upon the development of malignant connective tissue growths. It is unsatisfactory, again, because we cannot recognize the actual point of weakening of the membrane. We can and must recognize on the other hand the condition of intense and active growth of the cancer cells and of the pre-cancerous cells, if I may so describe them. And it is not difficult to assume that the very intensity of this growth, coupled with the vitality of the new cells which does not permit them to undergo easy atrophy, so long as there is abundant nutrition, is capable of causing so much pressure within the gland alveoli that the weakening of the basement membrane is purely secondary to the vigorous cell growth, so that this habit of growth can explain alone the bursting of the cancer cells through the membrane and their invasion of the adjacent lymphatics

The theory of a seminium as started by Virchow and elaborated by Creighton and others, while very taking, requires if pushed to its logical conclusion a seminium or seminal invasion for every proliferating cell in the body. True, each of us as a result of the habit of growth of one cell may be regarded as a motile tumour, and certainly in our case there was a primary seminium starting the growth, nevertheless comparative studies show that such is not necessary for the development of every organism or even for the development of sundry organisms high up in the scale of animal life. Add to this that the specific seminium in cancer has never been discovered.

Cohneim's celebrated theory has been so twisted about by various writers upon carcinoma, and has been made to do such yeoman service that it is necessary that I should here refer to it. But the embryonal cell vestiges upon which it is based are only useful in their restricted sense as explaining the rarer forms of cancer in which the condition of glandular or epithelial malignant growth apparently originates in tissues containing normally no glandular or epithelial substances. In its wider application it harmonises with the theory that I have placed before you, inasmuch as it demands as the initial stage of cancer growth the existence of embyronic cells.

It will be seen that the theory that I have laid before you by granting to the cancer cells the habit of tenacious and incontinent growth explains the assumption by the cancer cells of embryonal characters, explains also the overgrowth of these cells, the bursting through the basement membrane, the growth along surrounding lymph spaces, and even in the course of the blood vessels, and, with this, growth similar in character to the primary development at a distance from the primary seat, and so explains the formation of metastases, in fact the theory includes and explains all the essential characters of malignancy.

So far in laying before you these suggestions upon the nature of malignant growth, I have dwelt more especially upon the influence of chronic inflammation of moderate intensity in leading up to neoplastic tissue formation. But it may well be asked if it is necessary to assume that chronic inflammation of moderate intensity is the sole factor to be recognized as originating the habit of incontinent growth. A theory starting from the ground that malignant growth is always preceded by a stage of long continued slight inflammation is indeed untenable, clinical evidence does not warrant a premise of this nature. The most that can be said is that, comparing the histories we obtain in connection with the development of malignant neoplasms which are visible and more or less superficial, with those obtainable in connection with cancer and sarcomata of deep seated organs, we find a very much greater proportion of statements of previous injury and of chronic irritation in the former than in the latter class. I need but call your attention to the almost constant history of irritation obtainable in cases of cancer of the lips or of the tongue, and recent studies would indicate that—in the case of cancer of the breast for example—the more fully the previous history of the patient is studied the more frequently do we obtain evidences of injury inflicted upon the region which has become the primary focus of cancer. (Here, however, it is to be noted that the injury may have been inflicted long years previously.) But granting all this there remain cases in which it is not possible to demonstrate the previous action of chronic irritation, and these cases are sufficiently numerous to render it, I hold, unsafe to attempt to employ the argument by analogy and to assume that though unnoticed there did exist a pre-cancerous irritative stage.

If we examine the conditions associated with slight chronic irritation we cannot fail to notice that with the overgrowth of the tissues there is an accompanying condition of increased nutrition. Take for instance the edge of a chronic ulcer. The zone of the increased epithelial and connective tissue growths is at the same time a zone of

dilated vessels. That dilatation and the increased blood flow in the region may safely be said to have been brought about not so much by the demands of the peripheral tissue as by the central irritation, or in other words it would seem that, as a consequence of focal irritation, there is induced a dilatation of the vessels and increased blood flow extending beyond the area directly affected by the irritant. If this be so (and there is much to be said in favour of the view) then not a little of what are regarded as the effects of chronic irritation of a mild type may rather be assigned more immediately to over-nutrition —to a blood supply beyond the physiological needs of the region. And other cases in which there is such nutrition in excess of physiological needs unassociated with inflammation may likewise tend to the development of neoplastic growths.

We here approach a department of pathology that has been little worked at, and I must needs speak with caution. Indeed I would only hint that very possibly after the climacteric when retrogression of certain issues becomes increasingly manifest, with the absorption of certain of the components of sundry tissues other components of these same tissues gain a relatively greater amount of nourishment, and more especially where by injury (it may have been years previously) a certain amount of deformity or altered relationship of parts, a certain amount of instability, has already been introduced, there we have an association of factors peculiarly favourable to the acquirement of a tendency towards irregular and sub-adult cell growth —of a tendency towards the assumption by sundry cells of the aforesaid habit of incontinent growth. While upon this subject, upon the liability of cancerous growth to occur at or about the climacteric, I may point out that the cell changes accompanying the involution of the tissues at the change of life are reversionary in character, they resemble to a certain extent the changes which I have described as accompanying chronic inflammation.

Before closing this paper, I must needs impress upon you that there is one factor which I have not touched upon, namely, modified nerve control over the tissue. This may be a factor in the development of neoplasms, but beyond the fact that recent observations seem to be proving more and more conclusively the intimate relationship between the nervous system and the fixed cells of the body, there is nothing that can safely be said with regard to the matter; there are no experiments or direct observations at all bearing upon it. It is safer, therefore, not to do anything beyond referring to its very possible existence, and pointing out that it is wise not to leave it wholly out of account.

To return now to the substance of my opening remarks. If the suggestions (and I hardly like to venture to call them more than suggestions) which I have thrown out have any solid basis, then it would appear probable that the advance in interference with cancer must proceed directly along the lines that it is at present taking in the hands of the surgeons, namely, the duty of the surgeon must be to recognise the existence of new cell growths at the very earliest moment, and more, now that operation is so robbed of its previous terrors, and that parts can be removed with so little disfigurement and so little danger of sequelæ, it becomes the duty of the wise surgeon to remove every neoplasm, benign as well as malignant, at the first opportunity. There is no valid reason for retention, there is the possibility, even if it be but distant, that the benign growth may assume malignant properties. Destruction of the cancerous tissue at the earliest moment, whether by the knife or by the administration of substances which excite a specific action upon the cells,—this alone, I cannot but hold, is what we have to recognize as the procedure at which to aim.

DISCUSSION ON CARCINOMA.

NOTES ON THE PARASITIC THEORY OF CANCER

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So much has been written within recent years on the parasitic nature of cancerous tumours, and the results of investigations have in some respects been so plausible that I thought I could best contribute to the evening's discussion by briefly considering the possibilities of this theory and observe on what grounds we may be induced to place malignant tumours in the category of parasitic affections. While not presuming to champion the advocates of this theory, inasmuch as my experience is so limited, I will nevertheless endeavour to lay stress on its most favourable features, many of which render the parasitic nature of cancer something even more than a probability. We cannot at all events repudiate the theory without a careful consideration, for among its adherents are numbered two scientists whose names stand foremost in bacteriology and pathology. Metchnikoff after examining the specimens prepared by English and European investigators emphatically pronounced in favour of the presence of parasites in cancerous tumours, while Virchow is so strongly imbued with the same idea that he is withholding his final volume on tumours, trusting that the near future may bring increased light on the etiology of malignant growths. It must, however, be confessed that while perhaps many observers are willing to acknowledge the presence of parasites in cancer masses, they are less readily satisfied that their presence is directly associated with the cause of the malady.

Though it be true that the parasitic theory of cancer formations is at present incapable of scientific proof, yet it should not be forgotten that in many, indeed in the majority of our infectious diseases, we are unable to carry out the postulates laid down by Koch to prove their parasitic nature. The epidemic nature of some of course renders this character probable, but in others even this feature is wanting. The amoeba of dysentery is generally accepted as being the causative factor of the tropical malady, yet the absolute proof is entirely wanting. Few scientists to-day will deny the relation between typhoid fever and Eberth's bacillus, or of the plasmodium malariæ to the disease with which it is associated, yet in neither instance are we positively enabled to fulfil the requirements necessary to establish

satisfactorily the etiological relationship. As in these diseases, so too in carcinoma, where our knowledge is likewise very limited so far as the true cause is concerned, we are scarcely justified in discarding the theory of a parasitic origin till definite proofs to the contrary are established.

The customary classification of tumours, in so far as it does not consider their etiology, has been formed entirely on a basis of convenience in their nomenclature. The histological structures alone are taken as a means of differentiation between all the different types of neoplasms quite regardless of the cause inducing their growth. The distinction likewise between benign and malignant tumours is as much a clinical as a pathological differentiation and conveys no idea of their respective etiology, and one of the reasons is apparent. At the time when Virchow's classical work on cellular pathology appeared, parasites played absolutely no role in the study of pathological processes, and as the nature of tumours was then even more in doubt than now his desire was to formulate merely some convenient plan of nomenclature.

It is here that the first difficulty arises, for the merest superficial study of benign and malignant tumours suggests at once a difference so great as to render it more than likely that their respective causes are equally distinct. There are few pathologists to-day who ascribe the formation of malignant tumours to an overgrowth of embryonic cell remains, as suggested by Cohnheim for the origin of benign tumours, and the reason is obvious. When a tissue in its overgrowth ceases to remain local, ceases to retain its simple structure and regularity of outline, but tends to be distributed throughout distant portions of the body, there is at once suggested some special kind of stimulus, some unusual cause for such an irregular mode of procedure and extension of cells. The cause can hardly be identical with that for other more benign tumours, else one would surely get at some time or other an extension by metastases of lipomata, fibromata, etc. This, however, never does occur with the same invasive propensities, and there is at no time a paramount tendency to extension even locally. Some would explain this by the greater regenerative and proliferative power of epithelial cells over any other kind of tissue. While, however, such is the case, it is but a poor explanation of the atypical character of the growths in malignant tumours. Rapidity of growth alone can certainly not explain it, for whenever the epithelial growths extend rapidly it is because they find paths of small resistance, *i. e.*, the looser tissues and the surfaces, forming thus cauliflower excrescences, and so forth. It is rather where their growth is slow

that they invade denser tissues and infiltrate. Fibromata and other benign tumours may remain untreated for years and their tendency to invasion of other tissues is never manifest. They remain nearly always localized, encapsulated, and cause injury only by mechanical pressure.

The question is reasonably asked as to why in the one case we get metastases and not in the other, if a mere overgrowth of cells from irritation or other non-parasitic causes will account for the origin of both forms of tumours. The explanation cannot be offered that the nature of the individual cells of benign growths unfits them for transmission by vessels, for when the varied nature and sizes of cancer and sarcoma cells be considered it is not to be supposed that cells of other tumours find greater difficulty in passing through the vessels. Again, the mere fact that emboli of fat globules can be distributed over the body after fractures, etc., and be found in the smallest capillaries of the lungs would show that in one kind of tumour at least there is no mechanical obstruction to the passage of its elements by vessels.

There is further in malignant tumours not only a great activity, but this activity is directed in a special way. It is a true invasion of tissues—and invasion of vessel walls of all forms of tissues and by all possible channels. Wherever a distant part is infected with cells from the original growth the process begins anew.

So far as I am aware there is no other pathological process apart from parasitic affections possessing this same tendency of invasion and extension.

A further point of interest as illustrating the insufficiency of Cohnheim's theory as applied to malignant growths is obtained from a comparative study of tumours. Metchnikoff has pointed out that in the invertebrates cancer does not exist, while on the other hand it is very probable that cell remnants of epiblastic origin frequently occur in this order of life, so that reasoning by analogy we are scarcely justified in attributing to such remnants the cause of cell proliferation in malignant growths so far as vertebrates are concerned.

To examine into the nature of malignant neoplasms it is in the first degree necessary that we should see if in other parasitic diseases we have any evidence of new growths—if, in other words, parasites can induce cell proliferations in any way analogous to cancers. Of this I think we have abundant proof, and it will be of interest to institute a few comparisons between cancerous disease and those maladies where multiple new growths occur from the invasion of the parasite. Prof. Coats and others have asserted that an essential difference exists between the lesions found in parasitic diseases and those occurring in cancer,

that in the former the results are always irritative, inflammatory and destructive, in the latter purely proliferative. To these views, however, can be opposed the authority of equally capable pathologists, who insist on the neoplastic nature of such maladies even as tuberculosis. The bacilli once having found a resting place manifest their presence at once by a new growth of cells, the tubercle, and only subsequently do we get degenerative changes. It is practically the same in many other diseases, such as leprosy, where the earliest evidence of the presence of bacilli in the vessels is manifested not by an inflammation, but by a hyperplasia of the neighbouring tissues. As a result of the hyperplasia true tumours form chiefly in connection with nerve endings, while degenerative processes may be quite absent. But a yet more striking analogy between cancer and infective processes is seen in actinomycosis. It is true that here an irritation is set up by the advent of the fungus, but on the other hand so great is the proliferation of cells and bone formation in the jaw that before its parasitic nature was understood, its structure was looked on as being that of an osteo-sarcoma. From the primary seat metatases can spread to any part of the body, the first evidence of their presence in the newly-infected region being a multiplication of cells in the vicinity. But whereas it may be argued that in these instances the inflammatory conditions are primary, there are tumours formed by parasites where no sign of irritation exists. Such is the case in typhoid fever. The lymphomata sometimes found on the serous coats of the intestines, in the liver and elsewhere, are essentially neoplasms induced by the action of the typhoid germ.

In passing I would refer also to Hodgkin's disease, now classed by most pathologists among the infective maladies, for there, too, non-inflammatory neoplasms likewise occur.

But there are examples approaching still nearer to our subject, inasmuch as it is evident that in some instances an animal parasite (*i. e.*, one more nearly allied to the supposed parasite of cancer) can induce a hyperplasia of cells, a true tumour not running the ordinary course of inflammation. In chronic malaria the almost constant result of the parasitic infection is to produce in the spleen an enormous overgrowth in its essential cells and the fibrous stroma surrounding them.

It would seem, then, from what has been said, that parasites are quite capable of inducing overgrowths of tissue purely hyperplastic in character.

And further, it is known, that in some at least of the infectious diseases the parasites select chiefly certain cells for their habitat during a part at least of their life history. In malaria the blood cells

are selected, in leprosy the large multinuclear leprosy cells, in tuberculosis the bacilli are nearly always found in giant cells, in the last instances an active growth being apparent from the multiple nuclei. It may, then, be asked with reason, if cancer be parasitic why the epithelium cannot equally well be selected as a cellular habitat by parasites just as the blood cells, etc., in other diseases. Advocates of the parasitic theory of cancer find their organism constantly within the epithelial cells and it is here that the proliferation occurs.

Hitherto the instances given of hyperplasia have concerned cells other than those of epithelial structure, but we do not by any means lack an example where true epithelial overgrowths are induced by parasitic invasions ; this is found in a disease of rabbits known as coccidiosis. Since the researches of Malassez, Delepine and others it has been recognized that certain parasites (whose form and general character bear a striking resemblance to the supposed organism of cancer) often infest the alimentary tract of rabbits and make their way thence to the liver, where they invade the epithelial cells in the bile ducts. As a direct result, an extensive proliferation of the epithelial cells takes place and also of the fibrous stroma about them, so much so that a luxuriant overgrowth occurs resembling very much a malignant adenoma of the rectum. (v. fig. F and Nos. 1 to 7.)

From what has been said, then, it seems clear that, firstly, parasites are quite capable of producing cell proliferation independent of inflammatory conditions, *i. e.*, a proliferation analogous in general features to cancer ; that, secondly, they produce metastases, as does cancer ; that, in the third place, it is not uncommon to find parasites selecting special cell structures for their habitat ; and that, finally, we can find in the lower animals an epithelial overgrowth and the formation of a fibrous stroma, all being induced by the invasion of a parasite.

Before considering further the general reasons upon which the parasitic theory of cancer may be based, I will briefly describe the main characters of the organism supposed to be concerned in the formation of cancer tumours, though the diagram kindly prepared by Dr. Adami will perhaps better give an idea of their nature. In attempting such a description one is beset with difficulties, owing to the various opinions among investigators as to what is and what is not to be regarded as the true parasite. This confusion arises from the supposed resemblance which certain other structures have to these parasites ; among these may be mentioned forms of cell degeneration, morbid karyokinesis of cancer cell nuclei, invaginated cancer cells, enclosed leucocytes, and endogenous cell formations.

J. G. Adami.

Figures A to E. Supposed parasites within cancer cells (after Ruffer).

Figure F. Proliferated epithelium of bile duct, containing coccidia (after Delepine and others).

Figures 1 to 7. Coccidia in various stages.

The main opinions, however seem to be that the parasite is usually spherical or oval, with a more or less rounded nucleus, this latter occupying a relatively small area of the parasites' protoplasm. The cell body is homogeneous or mottled, sometimes radially striated. These striæ were supposed by some to be evidences of reproduction, such as is observed in malarial parasites. A capsule of double contour surrounds the organism and seems to be intimately associated with the protoplasm of the cancer cell, as though secreted by the latter. Sometimes the organism seems to lie in a kind of cyst or vacuole, in this way resembling the bacilli of leprosy, where the same condition often occurs. The parasite may be single or multiple within the cell, and invades sometimes the nucleus, sometimes the protoplasm. It is largely from the staining reactions that these are differentiated from the various other structures above mentioned. Where, however, so much strife is at present going on among the various English investigators I will not attempt further details in this matter, inasmuch as there seems but little possibility of rendering it more lucid from our present knowledge.

A point of interest, however, in regard to these bodies lies in the fact that they are invariably found in greater numbers at the growing edge of the tumour, and inasmuch as the cells in these areas are the youngest they are also least likely to be degenerated. Where, too, the greatest degeneration is seen in the tumours one finds a distinct paucity of parasites. An examination of the individual cells invaded by the parasite shows, further, that while little or no mitosis is seen in them, there is active proliferation in adjacent cells, the parasite thus acting as a stimulator of cell growth.

These facts in themselves though suggestive of the possibility that these organisms produce the cell proliferation, are of course far from proving it. In attempting to establish the proof serious difficulties arise, inasmuch as hitherto no one has succeeded in isolating the parasite and obtaining it in cultures. But the same is practically true of other diseases—hydrophobia, scarlatina and many others. Furthermore, however, we cannot be satisfied that transmission by inoculation from man to man is possible. A few isolated cases have been recorded where some of the lower animals have successsully been inoculated and the transmitted portions have given rise to new growths with metastases. This, it may be argued, is a mere grafting from one animal to another, but inasmuch as the same organisms will be found in the metastases of the inoculated animals, it remains yet to be proven that there is not something else besides the simple transplantation of cells. It is quite as possible that the experimenters,

without being aware of it, overcame in some way the obstacles that ordinarily prevent successful inoculations. Within the last few months a melanotic sarcoma was readily transmitted to a rabbit and in a few weeks had given rise to metastases throughout the body.

At all events we are too little familiar as yet with all the conditions necessary to produce successful inoculations. How many people have already ingested myriads of cholera vibrios by way of experiment and have subsequently felt no ill effects? Our methods at the present day are in many respects imperfect, and failures do not necessarily render the general underlying principles fallible.

On much that has been written on the contagiousness of cancer and its frequent occurrence in people who live much together I cannot touch, nor of the plausibility of the so-called "cancer-houses," which are marked as being contaminated. I would merely conclude by suggesting that until some other reasonable explanation is afforded we are not in a position to despise the parasitic theory of cancer formations.

It has been so often urged, and with apparently great emphasis, that in the majority of cancerous growths there is associated some chronic irritation, it may be a slight and persistent one, that I cannot close without referring for one moment to this theory. Whereas it is true that in a great number of cases some irritant is associated with the development of carcinomata, yet in the vast majority of instances the self-same irritant may be at work in just the same mild chronic and intermittent way and yet never induce a cancer. Of the number of men who use clay pipes there is surely but a small minority in whom cancer develops on the lip, while in the cases of cholelithiasis how rarely do we find cancerous conditions of the gall-bladder. It is true that with almost every case of cancer of that organ gall-stones are associated, but the mere presence of the cancer, implying as it does some destruction of the epithelium, etc., will supply a most ready nucleus around which concretions can form. Considering, then, how common are gall-stones and how rare is malignant disease of the gall-bladder, the latter would seem to be the primary condition and the cholelithiasis a secondary result. The same holds true to a more marked extent perhaps in calculi of the urinary bladder, which, in themselves so frequent, yet only under the rarest conditions are associated with epithelioma of that organ.

If it be true that chronic mild irritation can stimulate epithelial cells to overgrowths of a malignant type, we have yet to explain why this condition does not more often result from such a pressure. The persistent irritation which produces a clavus never, or scarcely ever,

results in an epithelioma; there occurs merely a superficial growth of epithelium, layer upon layer, never tending to become malignant, never forming metastases.

Where chronic inflammation exists there ensues frequently an extensive downward growth of the epithelial structures, but always more or less regular in its distribution. There are, however, occasions where scar tissue can develop into an atypical growth of epithelium, and this, it must be admitted, is difficult to explain. Here again, however, chronic irritation alone will fail to give an explanation, else the condition should be far more frequent than actually occurs.

It would seem that irritation alone, then, cannot explain the formation of cancerous tumours, that to the mere activity of epithelial cells alone cannot be accredited the formation of cancers, and it would seem that our only resource is to examine for some deeper cause, to search for the original stimulus which brings to the cells the power to proliferate. It has been shown how characteristic are new growths as the result of parasitic invasion and how scarce are evidences of similar growths in diseases that are proven to be non-parasitic. So that placing together all our facts we feel that, for the present at least, there still remains a hope that in the near future something more may be discovered to account for the similarity of malignant processes to those in the infective diseases.

DISCUSSION ON CARCINOMA.

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As Drs. Adami and Martin have so eloquently sustained their parts of the discussion and carried us into the fairy realms of pathology, where we have floated on the clouds of theory, it will perhaps not be so pleasant to many of you to come down to terra firma and hear the hard, dry facts of clinical surgery in its relation to cancer. Before entering upon any special description of the symptoms and treatment of cancer of the lip, tongue, throat and œsophagus, I should like to say that I firmly believe that all cancers are local in their origin, that by early and wide removal recurrence may be prevented, and that removal should be undertaken as early as possible in the pre-cancerous or inflammatory stage, if that stage can be made out. I also wish to say that I believe that certain individuals are more liable to cancer because they are more vulnerable, and that this vulnerability is a matter of heredity—also that a person may be vulnerable yet never knew it, because he has never been exposed to the exciting causes of the disease. The exciting causes are probably many, the most potent being local irritation, as witness the frequency of cancer of the lip and tongue in the male and the smoker ; the fact that in India the natives frequently suffer from epithelioma of the abdomen at the place where, in cold weather, charcoal braziers are applied ; also the marvellous fact that chimney-sweep's cancer of the scrotum, once so common in England, has been abolished by Act of Parliament, that is, it has entirely disappeared since chimney-sweeps have been prevented climbing up the insides of chimneys and thus have avoided irritation of the scrotum by soot. I remember well a few years ago removing an epithelioma from the roof of the mouth in an old man, who had no teeth, and who, when smoking, in order to prevent the pipe falling out of his mouth, tilted it up against the hard palate ; at that point an epithelioma appeared. Cancers of the breast frequently follow injury, and cancer of rectum may be caused by irritation of hardened fæces and foreign bodies. In fact I could, were it worth while, multiply *ad infinitum* the various ways in which cancers are induced. As to the parasitic theory of the origin of cancer and the treatment of cancer by toxines I have not much to

say; probably those that follow me will take up this part of the subject. I feel, however, that here a wide field of investigation is being opened up, and in the future there is promise of an abundant harvest.

Cancer of the lip.—The form of cancer most seen in the lip is epithelioma. Males are most commonly affected, because in them the lips are more subject to irritation from pipes, tobacco, etc. This form of cancer usually appears after 45, its growth is slow and the glands in the submaxillary region are fortunately not early involved. The disease first appears as a fissure, a warty growth, an excavation, or an ulcer, which will not heal. It may first appear as a little tubercle covered with a scab, which when picked off soon forms again. In whatever way the growth commences sooner or later ulceration sets in. This ulceration is deep with hard edges and a hard infiltrated base, and although not painful, causes discomfort, especially when eating. After a time the glands in the submaxillary region become enlarged and infiltrated, and later the other glands in the neck become involved and the case becomes hopeless. Chancre of the lip is the only affection which might be mistaken for epithelioma. In chancre the glands are early involved. As I said before, involvement of the glands in cancer of the lip is a late symptom. Early incision is the only form of treatment which is of any use. Every sore on the lip which is difficult or slow to heal in an individual past middle life should be regarded with suspicion and should be freely removed. Caustics should be avoided. Early removal before the glands become involved will, in most cases, result in a permanent cure. No cleaning out of the submaxillary space will be needed, but if the sore has lasted for any length of time, then even if no distinct enlargement of the glands can be felt through the mouth, the lymphatic tissue in the submaxillary region should be cleaned out as the axilla is in cancer of the breast. It is my custom when there is enlargement of the submaxillary glands first to operate on the lip and a week or two later in the submaxillary region, waiting till the inflammatory conditions about here subside and one can tell how much tissue to remove. In most cases it will be found necessary to remove the submaxillary salivary glands, for in them are imbedded lymphatic glands which lie concealed and may contain cancerous elements, although this condition is not demonstrable to the naked eye. I need not describe the method of operating in cancer of the lip for it is familiar to all of you. When a considerable portion of the lip is involved a plastic operation would have to be done. I might mention that modern surgeons have discarded harelip pins and now only use sutures of silk-worm gut, silk or catgut.

Cancer of the Jaw.—In this form of cancer the conditions are more unfavourable than in that of the lip. It often occurs in the comparatively young and is more common in the upper jaw. It commences in the gums and spreads to the jaw. Early and complete removal is the only treatment. My experience has been unfavourable as to recurrence in these cases. I do not recollect a single case of permanent cure. In one I thought I had effected a cure, but alas, after four years of freedom recurrence has taken place. The history of this case is interesting and instructive. Eight years ago he had a sore on the lip which was treated by a cancer quack with caustics. A year later I saw him and removed some cancerous glands in the submaxillary region; next year he returned with cancer of the right side of the jaw. This half of the jaw was removed; the following year he again returned with cancer of the remaining half of his jaw. This was removed, and when he was well on the way to recovery he had a severe attack of erysipelas, of which, however, after a long convalescence, he got better and for four years, until the present summer, remained well. The disease has now returned and the involvement of the parts about the jaw and neck is so extensive that operation is out of the question.

Cancer of the tongue is always epithelioma and commences as a fissure, nodule or ulcer, usually on the side and the anterior portions, more common in men than women—247-46 (Barker). Exciting cause, smoking, which often leads to leucoma or psoriasis of the tongue, a condition which may be produced by syphilis and dram drinking. Sixteen out of eighty cases are preceded by leucoma, according to Butlin. All scars, syphilitic fissures, etc., predispose; irritation of a sharp tooth or badly fitting tooth-plate. However, no exciting cause can be found in some cases. Any case of ulcer of the tongue occurring in a person over 40 should be looked upon with suspicion, and if it does not heal readily should be excised. If one waits until the signs of cancer are unmistakable, such as deep ulcerations with infiltrated base, enlargement of glands, etc., then operation is of only temporary benefit. To be successful the operation must be early, and if possible before the glands are affected. If the case be left until the floor of the mouth or the tonsils are involved, operation is not very promising as to cure.

Diagnosis.—(1) Tubercular ulceration; (2) syphilitic disease, primary or tertiary; (3) simple ulcer.

Tubercular.—More at tip; age not diagnostic; lymphatic glands involved in both; history and microscopic examination only tests of value.

On one occasion I excised the tongue of a man of 60 for supposed cancer of the tongue; he died three weeks after from acute general tuberculosis; the supposed cancerous ulcer was tubercular. In this case there was no microscopic examination previous to operation.

Syphilitic Ulcer.—If primary, the glands are very early involved. The history helps one in tertiary syphilis. The ulceration is usually preceded by induration; in cancer this follows the ulcer. Ulcers may be multiple in syphilis.

Simple ulcers have rarely much induration about them. Any ulcer in a man past 40 which does not heal readily should be excised. In any doubtful case always excise a portion of ulcer for microscopic examination.

Treatment of cancer of the tongue should always be by excision—partial or complete excision. There are many very extensive operations advised, such for instance, as Kocher's, where a preliminary tracheotomy is performed and the throat plugged with antiseptic material. Vomiting, however, is not provided against in this operation. I much prefer Whitehead's operation to any other. Formerly I always performed preliminary ligature of the lingual arteries, but now with a good assistant these arteries are easily secured in the mouth as cut. In Whitehead's operation of excision scissors are the only cutting instruments needed, and the tongue can be entirely removed in a very few minutes. After operation some form of antiseptic paint of iodoform and Tinct. Benz. Co. should be applied to the cut surface and the mouth should be washed out with a weak solution of permanganate of potash. Formerly it was my custom to feed by the rectum for some three or four days, but now I commence feeding by the mouth with a tube the day after operation, and also allow the patient to get up and, if the weather be fine, to walk out in the sun. By these means recovery is much more rapid, the discharges are much less likely to get into the lungs, and the patient can more easily get rid of the thick stringy mucus which is so often seen after these operations. The great dangers of excision of the tongue are hæmorrhage and septicæmia. Hæmorrhage is now rarely dreaded and septicæmia may be prevented by careful antisepsis and attention to the proper methods of feeding.

In operating for cancer of the tongue the following points are important:

1. Remove all the disease. And here I might say that I do not believe in partial extirpation of the tongue, but prefer always to remove the whole tongue.

2. Prevent hæmorrhage.

3. Avoid entrance of blood into the air passages. This may easily be done in Whitehead's operation by never allowing the patient to be too completely narcotized. In these cases I always keep the patient in a semi-recumbent position, and as soon as the tongue is excised allow him to recover and sit up, and the arteries which have been secured by forceps are now tied at one's leisure.

4. The presence of an aseptic condition of mouth should be preserved until healing is complete. This may be accomplished by the use of antiseptic paints and the frequent irrigation with an antiseptic solution.

I had intended saying something about cancer of the larynx and œsophagus, but I see my time is up, and I shall close by reiterating what I said in the beginning, viz., that cancer primarily is local in its origin and may be cured if removed early and widely enough.

DISCUSSION ON CARCINOMA.

By George E. Armstrong, M.D.

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Perhaps in no department of surgery has greater advance toward a higher ideal been made during the past five years than in the surgical treatment of surgical diseases of the stomach and rectum.

In 1890, at the International Congress in Berlin, Billroth reported 69 stomach resections and gastro-enterostomies, with a mortality of 47¾ per cent.

In 1895 Dr. J. Mikulicz, of Breslau, reported before the Association of Surgeons in Berlin 103 operations upon the stomach, with a mortality of 23⅓ per cent., or less than half the rate of mortality reported by Billroth just five years before; and this advance is still further emphasized by the report that 68 of these 103 operations performed during the last two and a half years gave a mortality rate of only 16 per cent. The fatal issues were generally due to collapse, inanition or pneumonia.

Of these 103 operations 33 were gastrostomies for carcinoma of the œsaphagus and cardiac end of the stomach, with 6 deaths directly due to the operation; 23 were gastro-enterostomies for carcinoma of the pylorus, with 6 deaths, and 18 were pylorus resections for carcinoma, with 5 deaths.

The shortest period of survival after gastrostomy was three and a half weeks and the longest twelve months, an average of four and a half to five months. But this operation should not be judged alone by the chances of recovery after operation, but by the future history of the patient operated upon. And to the question which might be reasonably asked, "Is it worth while undergoing such a serious operation, with its attendant danger, for the sake of such a short respite from an inevitable result?" I think we may truly answer that gastrostomy will relieve from that most agonising form of death, death from slow starvation, and that if life were not prolonged even by one day, yet would the operation be advisable from a purely humanitarian point of view. With the aid of anæsthesia and the modern surgical technique, with the relief from frequent painful dressings which it ensures, the pain from the operation is very slight.

The successful removal of carcinoma from the lower end of the

œsophagus and cardia will probably never be feasible, more especially as the region cannot be palpated or diagnosed with certainty until the disease is somewhat advanced.

The average duration of life after gastro-enterostomy for carcinoma of the pylorus was nine and a half months. This again is essentially only a palliative procedure, but the relief from the distress incident to pyloric obstruction and stomach dilatation makes it, in my opinion, well worth the doing. The easier death from metastasis, anæmia and asthenia is not to be lightly thought of. But gastro-enterostomy should give way to pylorectomy, which gives a longer respite and the only chance of permanent cure.

The average duration of life after pylorus resection for carcinoma was sixteen and a quarter months. Pylorectomy excels by far in its results gastrostomy and gastro-enteostomy, and it is to this procedure that we must look for our most brilliant results in the future. It aims at taking advantage of the doctrine of cancer being primarily a local disease, and removing it radically before it has infiltrated adjacent tissues or infected the neighbouring lymphatics. Four patients who had been submitted to pylorectomy were free from recurrence respectively twenty-four, eighteen, five, and five months after the operation. One of Mikulicz's cases lived three years after operation, one of Billroth's cases five years, and one of Kocher's cases was free from recurrence seven years after operation. Czerney reports 12 pylorus resections, with 5 deaths; 2 were living and in complete health fifteen and twenty-six months after the operation. The other 5 died two, seven, ten, fifteen and eighteen months respectively after the operation, with symptoms of a return of the disease. As the usual duration of life in gastric cancer is little over a year this is a distinct gain. My own case died eight months after operation, with symptoms of recurrence. The stomach is more frequently the seat of primary cancer than any other viscus except the uterus. Now, fortunately, when the stomach becomes the seat of the cancerous process the pylorus is affected oftener than any other part. Welch analyzed 1,300 cases of stomach cancer and found the pyloric region the seat of the disease in 791 of these cases, or 60·8 per cent. It attacks men a little oftener than women. Herbert Snow has collected statistics of 3,819 cases of primary cancer of the stomach, and 2,116 occurred in men and 1,698 in women.

With these established facts, taken together with our improved methods of diagnosis and the statement of Welch that a tumour is present in three-fourths of the cases of gastric cancer, is it too much to hope for that in the near future we may be able to obtain much better

results in pylorus carcinoma than have been obtained in the past? To accomplish this we must operate early, if possible while the cancer is limited to the gastric follicles, before the muscular layer is perforated. and certainly before metastasis has occurred in adjacent tissues or lymphatics.

I would urge the association of an operating surgeon with the physician, for it is always the physician who is first consulted in these cases of suspected gastric cancer, and I think the time has come when we can, when in doubt, advise an exploratory incision with confidence.

In regard to extensive resection of the stomach, the so-called extirpation, the success so far attained has not been encouraging, and it is doubtful if such operations have any future.

The time limit will not permit me to deal with the whole of the alimentary canal, and I think I can probably discuss the treatment of cancer of the rectum, with more interest than any other part of the intestine, more especially as the modern operations are not described by many English text-books. Neither Treves or Jacobson mention Kraske's operation at all. These operations have been worked out by Continental surgeons and are practised in the United States and in Canada.

Volkman drew attention to the lesser tendency to metastasis in cancer of the rectum than in the same condition occurring in the female breast. The functions of the large gut are not essential to life except in so far as its action as a tube is concerned. Carcinoma of the rectum runs a particularly chronic course. Herbert Snow states that it may exist for ten or fifteen years without causing death. It often remains for a long time a localized disease. Iversen reports 47 autopsies, with no metastasis in 21. Bardenheur was the first to draw the line of distinction between amputation of the rectum and resection.

According to Warren the statistics compiled up to 1881 show a high rate of mortality varying from 31 to 58 per cent. in the hands of different surgeons. Thorndike estimates the mortality during the next ten years at 16·1 per cent. Kraske published in 1885 a paper which gave a new impetus to this operation.

The difficulties found to obtain in dealing with cancer of the rectum have been access, hæmorrhage and sepsis.

The different methods lately devised to secure better access to the rectum have at the same time enabled the operator to lessen the loss of blood.

In 1883 Volkman in removing a sacral sarcoma accidentally opened the sacral canal and, somewhat to his surprise, no harm resulted.

Kraske, at that time Volkman's assistant, took advantage of this experience and proposed and carried into practice the chiselling away of the left border of the sacrum, thus gaining free access to the upper part of the rectum. The incision is made over the sacrum and coccyx, the latter is removed and the greater and lesser sacro-sciatic ligaments separated and the lateral portion of the sacrum chiselled away. This operation remains one of the safest and simplest, as it leaves the lateral blood and nerve supply on the right side uninjured. It has been followed, however, by prolapse of the rectum, which proved in some instances very intractable. I adopted this method in one case and the patient died two years later from local recurrence and asthenia. There was no metastasis.

In 1889 Billroth made a V-shaped incision, one leg of the V crossing the sacrum below the level of the third sacral foramen and the other passing down along the left border of the sacrum and coccyx. The sacrum was then divided on a level with the third sacral vertebra and the osteo-integumental flap turned to the right. This operation was afterwards claimed by Rehn, of Frankfort, and by Rydygier. This method gives a very ready access and is not so likely to be followed by prolapse. The right lateral blood supply is not interfered with and the bone is found to unite well, even in those cases where primary union of the external wound is not obtained. Borelius of Karlsbroma, modified this method with a view of still further avoiding injury to the nerve supply of the levator ani and sphinctor. He made a median incision from the middle of the sacrum down over the coccyx and then along the border of the right gluteus maximus muscle, and cut through its fibrous insertion. The margins of the wound were then dissected back and the sacrum chiselled through obliquely from the lower margin of the left to the lower margin of the right sacral foramen, and the lower end of sacrum was then turned down to the left.

Heinecke made a T-shaped incision, the transverse incision corresponding to the level of the third sacral vertebra. The bone incision corresponded to the superficial one, and the two osteo-plastic flaps were turned out and at the end of the operation replaced and sutured. This is practically the method employed by Gussenbauer, and its results are said to be very satisfactory.

Rehn has approached the rectum in woman by the vagina, making longitudinal median incisions through the raphe of the perineum to the sphincter ani. The rectum is then separated from the posterior vaginal wall and from the sacrum and brought down, the portion diseased resected, the ends of the gut sutured and the wound closed.

The patient upon whom he operated, however, died of avoidable peritonitis.

One of the great advantages of these latter operations over Kraske's is that they do not divide the tubero sacral and spinoso-sacral ligaments and thus weaken the pelvic floor.

There are a number of considerations that may be discussed as applicable to all these methods of operating.

In the old operation of Dieffenbach, Velpeau and Lisfranc the neoplasm was appoached from the anus and in many instances the sphincter was sacrificed.

One of the first advances was in the direction of saving the sphincter and the substitution of resection for amputation.

Willems, Rydygier and Witzel proposed to utilize a portion of the gluteus maximus muscle for a sphincter and brought the upper end of the rectum out between the lower fibres of this muscle. Witzel reports six cases operated upon successfully by this method. Gersuny proposed torsion of the upper end of the gut on its own axis and fixation of it to the skin by suture. The resistance to the escape of fæces offered by this procedure was overcome by the contraction of the abdominal muscles. Several cases have been reported in which this method proved successful.

The next step in advance was the deliberate opening of the peritoneum. This was found to be necessary in cases where the disease was situated high up. To accomplish this successfully it was a *sine qua non* that the field of operation should be rendered aseptic, and this was not easy of accomplishment. In many cases there was found narrowing of the gut at the seat of disease and a condition of coprostasia. This could only be overcome by a long course of preparatory treatment, extending over a period of from one to three weeks. During this time the bowel was gradually emptied of hardened fæces by repeated daily enemata, so that at the time of the operation it could be washed with cleansing antiseptic solutions and the field secured free from fæcal matter. To still further secure a field of operation as aseptic as possible Quénu suggested that the growth be curretted and thoroughly cauterized. As a result of these precautions we can now open the peritoneum with comparative safety and close it again by suturing it to the wall of the rectum.

The next difficulty was found to be sloughing of the upper end of the rectum from interference with its blood supply, and to obviate this the mesentery must be carefully avoided. Incisions can be freely made laterally, but from behind the rectum must be separated very carefully with the end of the finger and without dividing any of the

mesenteric vessels. If the middle hæmorrhoidal is avoided the nutrition of the proximal end will not be impaired.

The union of the upper and lower segments of the rectum by any method of suture yet devised has been disappointing in its results. Leakage and fistula have resulted in nearly every instance. When successful it is the ideal result in cases where the nerve supply to the levator and sphincter ani has not been divided. This unfortunate separation has apparently been due to septic infection from descending fæces before the union was accomplished; and although ample drainage was secured the fistula did not tend to close and the neighbouring tissues became infected with the discharges. To overcome this difficulty Schede proposed to do a preliminary colotomy and thus secure for the parts below rest and asepsis. This suggestion, so far as I am aware, has not been carried out in any large series of cases, but it seems to me to be a valuable one. After the union of the segments is accomplished the opening in the colon can be closed and the fæces allowed to pass the natural way. There are two other reasons why this procedure might be adopted, one is that it would afford an opportunity of removing hard scybalous masses from the rectum and thus securing a clear field below for operation, and the other that it would afford an opportunity of defining the upper limits of the cancerous growth.

Another unfortunate *sequela* of proctorrhaphy is the tendency to contraction and formation of stricture. In the small bowel this is not so serious a consideration, because the fæces are softer and oftener liquid in character than in the colon. In the large bowel the fæces tend to become dry and hard and to collect in masses that could pass a narrowed point only with difficulty. There is a tendency for them to collect above the stricture, and by causing dilatation and a local catarrh of the bowel at that point to favour recurrence.

I have thought that in view of the tendency to local recurrence in rectal cancer, and of the difficulty of preventing troublesome and often persistent fistulæ, and of narrowing of the bowel at the point at which the two ends were sutured, and of the danger of sloughing of the proximal end when a very high division of the rectum was found necessary in order to remove the whole growth, that it would be better in such cases to extirpate the rectum completely and to establish a permanent artificial anus. If this procedure would ensure a considerably greater chance of permanent cure, its dangers are not great and it is a perfectly feasible operation.

I have not yet put this idea into practice, but I think that I should be tempted to do so under the circumstances mentioned. A patient

with a well made artificial anus in the groin is able to go out and mingle with people, and can keep himself clean and can attend to himself. He is probably better off in this respect than the man with leakage of fæces in his perineal or sacral regions. Complete extirpation of the rectum could be made a much more radical operation, and the chances that the disease would be all removed would be greatly increased. I think it would give greater prospect of freedom from recurrence, and that should be the great consideration in the removal of malignant disease in the future.

Mikulicz, with a view of lessening the shock of the operation due to the unavoidable loss of blood, has sometimes given an intravenous injection of Koch's saline solution before operation. He has sometimes given as much as two litres before and repeated it after the operation was concluded if it seemed be required.

Lastly, I should mention that an Australian surgeon, Dr. Maunsell, has proposed to invaginate the rectum, together with the neoplasm, and then to remove it. Rehn suggests that this might be done very well in women, by first making an incision in the posterior vaginal wall and after separating the rectum all around invaginating it through the sphincter.

I am sorry that I cannot give any new signs by which carcinoma of the alimentary tract can be recognized at an earlier stage. In the meantime we can only bear in mind its existence and use the greater diligence in applying the tests that we already have, knowing that early recognition of the cancerous process in any part of the body is more than half the battle.

DISCUSSION ON CARCINOMA.

JAMES BELL, M.D.

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The part allotted to me in this discussion includes cancer of the breast, the external genital organs and the skin, as seen from the standpoint of the surgeon.

There is probably no organ of the body which is subject to cancer in which the disease produces greater distress and suffering, both mental and physical, and ultimately a higher rate of mortality than the female breast. Moreover, it is frequently attacked at a comparatively early age and valuable lives are lost while yet in their prime. In this connection I wish to point out that although the rudimentary mammary gland of the male is sometimes the seat of cancer, it is nearly always the mammary gland of the female which we are called upon to treat. This is the converse of the statement just made by Dr. Shepherd in speaking of cancer of the lip, in which he pointed out that the disease was practically always found in the male.

There is a point which cannot be too strongly emphasized, and it is this, that in the early stages of cancer of the breast, when it is most important that a diagnosis should be made, and there is still an opportunity to effect a radical cure, it is most difficult to recognize, and as a matter of fact is rarely recognized. There are, moreover, benign tumours of the breast which it is practically impossible to diagnose from carcinomata, except by the microscope. I think the surgeon's rule should be that except in the case of those distinctly innocent growths, which are comparatively common in young women, it is safer to act upon the assumption that they are malignant. I mean that unless he can be practically certain that the growth is a benign one he should treat it as if he were certain that it was a carcinoma. There can be no middle ground. I have recently had a case which illustrates this point and which impressed me greatly. It was that of an unmarried woman 50 years of age. She had a history of growths in both breasts, one of eight years' duration and the other of six. They both had all the clinical characters of cancer of the breast and had been so diagnosed by several physicians. They were both accompanied by enlarged lymphatic glands leading towards and into the axilla. The strong point against their being malignant was their long

duration without producing any deterioration of the general health or any evidence of metastasis. I suggested to this patient that one breast should be removed, viz., the one which had been affected the longest and which most resembled cancer (clinically) and subjected to histological examination, on the result of which the fate of the other should depend. She accepted my advice and the breast was removed, very widely and with thorough dissection of the axilla, just as if it were clearly a cancer. The gross appearance on section was distinctly that of cancer, but the microscopical examination discovered only a fibro-adenoma. However, I determined to remove the other breast, as I felt that the certainty in the case of the one could not be assumed to remove the uncertainty in the case of the other. On examination the second breast proved to be a typical carcinoma. Here it was practically impossible to make a diagnosis; and yet it was most important that the growth should be removed.

The surgical treatment of cancer is based upon a recognition of the following facts, which may be said to be generally accepted by both pathologists and surgeons:

1. That cancer is primarily always, and generally for a considerable period of time, a local disease.

2. That it extends (*a*) by infiltration of adjacent tissues, and (*b*) by being carried along the lymphatic vessels to the nearest group of lymphatic glands.

3. That metastasis to remote organs occurs only, as a rule, much later.

The obvious inference is that removal should be early and should include not only the tissues for a considerable distance around and beneath the mass, but also the nearest group of lymphatic glands, and all the tissues intervening between them and the mass. When I speak of removal I mean by a cutting operation, and I wish here to express my opinion in the most emphatic manner that the use of caustic applications for the cure of cancer is in the highest degree unscientific, and that in most cases it can do nothing but harm. I speak thus plainly because even in comparatively recent text-books and monographs upon malignant disease we find the statement that there are cases in which escharotics are curative and are to be recommended. With this teaching I have no sympathy whatever. I admit that as a palliative measure in incurable or inoperable cases the use of caustics or partial operations, such as curetting, etc., may be indicated, but I contend that their ultimate effect is always to stimulate the growth of the original disease. In my opinion clinical experience all goes to show that local irritation is a very prominent factor in the production

of cancer and in increasing the rapidity of its development when it is already established. Now, with regard to operations for the removal of cancer of the breast, the methods of operating have within the last few years been so greatly extended and modified that they are now quite different from what they were ten or fifteen years ago. We recognize that, quite apart from the necessity or the possibility of closing the wound, the whole breast gland must always be sacrificed and the tissues for a considerable distance beyond what seems to be the limit of the disease, because there can be no doubt but that infiltration always extends much further than we can recognize it by either the sense of sight or the sense of touch. The tissues should also be removed deeply, down to the wall of the chest in the lower part and always including the pectoral fascia and, when necessary, a part or the whole of one or both pectoral muscles, quite apart from the consideration of the subsequent usefulness of the arm. (And it is suprising to observe how little these extensive dissections interfere with the functions of the arm.) In all cases the whole of the axillary lymphatic and aveolar tissue must be removed. It must be removed whether we can recognize any glandular infiltration before operating or not. Speaking now, from memory only, I do not think that I have ever removed a carcinomatous breast and dissected the axilla in which I have not found cancerous glands, although it was in many cases impossible to detect them before operation. The minimum operation for cancer of the breast should be, therefore, removal in one mass of the mamma surrounded by a wide area of healthy tissue, including the pectoral fascia and all the tissues down the chest wall at a lower level than the muscle, all the lymphatic and cellular tissue of the axilla and all the tissues between the original mass and the lowermost part of the axilla. In a large number of cases this is sufficient, but there are a great many other cases in which it is necessary to go still further in order to remove the whole of the disease, on account of its having invaded the glands beneath the pectoral muscles and up, even into the supra-clavicular space. In these advanced cases we frequently find that after a most extensive dissection we are obliged to complete the operation, or rather desist from further operation, with the certain knowledge that cancerous tissue has been dissected from an area perhaps of an inch or more of the axillary artery and vein, with which it has been in the closest relation anatomically, and with the strongest suspicion, often amounting to certainty that the walls of one or both are invaded by the cancerous growth. It has frequently occurred to me on arriving at this condition of affairs to ask myself whether having done so much one ought to stop here? Whether under

such circumstances, other things being favourable, the whole upper extremity should not be removed after the method which is employed in the treatment of sarcoma of the neck of the humerus or scapula? This operation when performed by the method known as that of Paus Berger is nearly bloodless, is not followed by shock and is easily performed. Above all it makes a clean sweep of all the tissues which are liable to be invaded by extension from the axillary glands, and is in many cases the only way in which this can be done. Of course when the glands of the mediastinum are involved, or when there are metastatic foci in remote parts no operation can be curative. But as I have already pointed out these conditions obtain only, as a rule, long after the disease has reached such development that diagnosis cannot be mistaken. I am sure I have seen several cases where this operation was indicated, and in fact I have advised it in a couple of cases, but the patients would not submit to it. If this is not done in those cases the result is, that within a few weeks there is œdema and often neuralgia of the arm, which we are powerless to remedy, and which makes life a miserable burden, until it is terminated by gradual exhaustion, or by a metastatic growth in some vital organ. I was not aware until quite recently that this procedure had actually been successfully carried out, but in one of the latest numbers of the *Lancet* is a report of a case by Mr. W. Arbuthnot Lane, in which he had removed the upper extremity for extensive cancer of the breast and axilla by a modification of Berger's operation. This procedure has the appearance of being a very formidable operation (although it is not), and of being a great sacrifice, but we cannot weigh the value of a life against the loss of an arm, and as I have already pointed out the arm soon becomes not only useless, but a painful encumbrance. If I might venture a prediction, it would be that in the near future this operation will be frequently performed and many valuable lives will be saved by it. It is frequently stated that recurrence after removal of the breast for cancer is generally in the cicatrix. Now I think when this occurs the only logical inference is, that in the original operation the removal was not wide enough or deep enough. I think the experience of all surgeons is that when the incisions have been in all directions sufficiently wide of the disease, recurrence is generally in the axilla and is correspondingly rare in the cicatrix.

With regard to the statistics of the operative treatment of cancer of the breast, I do not think that there are any that can be relied upon, for the reason that it is only within the last few years that anything like radical measures for the removal of all the disease have been adopted, and the statistics of the older methods show uni-

formly bad results. If I am not mistaken the statistics available,—say ten or fifteen years hence, will show very good results,—at least everything seems to point that way at the present time. I have not attempted to trace the subsequent histories of my own cases for this discussion, and I can only at the moment speak positively of one very satisfactory case in which perfect health has been maintained for any length of time. The case is that of an elderly lady, 65 years of age, operated upon in 1889, now six and a half years ago. The disease was extensive, distinctly involving the glands of the axilla. The operation effected a very wide removal of tissue and a very thorough dissection of the axilla, and according to my information received quite recently, this patient is still quite well and free from any sign of recurrence.

In cancer of the male genital organs, the same general principles must be applied, and in removal of the penis, whether the disease be extensive or not, and whether the superficial inguinal glands show any sign of infiltration or not, the contents of these spaces should be thoroughly removed by dissection.

In dealing with malignant growths of the testicles, it is practically impossible except, sometimes, at a very late period to distinguish between cancer and sarcoma, or those mixed growths which are so commonly found in the testicle. In any case it is to be borne in mind that the lymphatic extension here is to the retroperitoneal glands which, of course, are quite inaccessible to operation. It is only in the later stages of cancer of the testicle, when the tunica vaginalis and superficial parts have become involved, that extension to the superficial inguinal glands occurs.

Time will not permit me to speak at length on cancer of the skin. I will merely call the attention of the Society to the case of a man aged 65, who had an epithelioma of the leg developing upon an old ulcer, and upon whom I operated in November, 1892, removing the whole area ($9\frac{1}{2}$ by 6 inches) and transplanted skin from the thigh by Thiersch's method. This patient (who was presented at one of the meetings of this Society, about six weeks after operation), is, I am credibly informed, still quite well and free from recurrence of the cancer or even any return of the ulceration (now a little more than three years after operation). This and similar experiences with the so-called "rodent ulcer" lead me to believe that cancer of the skin has much less tendency to extend itself by any of the known methods than has cancer of most other tissues.

A TRIP AMONGST THE GYNÆCOLOGISTS OF NEW YORK.[1]

By C. L. Prevost, M.D., Ottawa.

As you know, I lately spent a few weeks in New York, where I visited the hospitals and eagerly listened to the lessons taught by the eminent gynæcologists whom the commercial metropolis of the United States is so proud of. I came back delighted with my trip, and I long to render my happiness complete by trying to make you share the intellectual enjoyments I have experienced, the recollection of which is still fresh in my memory.

This introduction indicates to you to what a degree my enthusiasm has been aroused by that marvellous city. For us, who in this capital of our Dominion are leading such a calm quiet life, the restless activity which reigns in New York is simply a revelation. The noise, the rush of business, the glitter of wealth, the progress manifested in every direction, all this is actually astounding! With gaze rivetted upon everything that surrounds us, our captivated senses seem to whirl about; we instinctively feel ourselves carried away, as if powerless, by the universal animation. But, once this momentary stupour over, we recover possession of our intellectual faculties and catching the contagion, we start forth following the others and saying to ourselves, "That is the way to understand life! Let us go ahead."

It is not my intention, gentlemen, to lead you through the magnificence of social life in New York. I merely want to beg the pleasure of your company to an excursion through the intellectual world, and especially that part of it which is particularly interesting to us, being in relation with our daily studies, I mean the medico-surgical department.

One word only of the hospitals in general. It is totally useless to endeavour to describe the luxury and the perfection of a certain number of them, especially those which have been recently erected. One must see them with his own eyes to see what hygiene and scientific modern investigations have accomplished for the relief and welfare of those who suffer.

The advantages offered to the physicians and students who follow those hospitals are innumerable, owing to the clinical material they contain, and the eminence of the talented men who manage them. I want to mention above all, the Post Graduate Medical School, the

[1] Read before the Ottawa Medical Society, November, 1895.

German Hospital, the New York Cancer Hospital, the Presbyterian, Lebanon, and Roosevelt. The operating room of the latter is a model one ; it is nothing short of a marble palace, erected in honour of modern asepsis. W Y. Sims, the generous founder, spent more than half a million in making it the most perfect and complete surgical operating room in the world. Inaugurated in November, 1892, the Sim s operating building has its principal entrance on 8th street, opposite the College of Physicians and Surgeons. In the centre there is a vast amphitheatre supplied with gas and electric lights, the doors, the walls and the floor of which are of white marble. All around the amphitheatre runs a circular corridor from which a dozen rooms open, to wit, a waiting room, a room for examination of patients, two rooms for etherization, a room for photography, a bacteriological laboratory a room for dressings and bandages, a room for sterilizing apparatus, another for cleansing the instruments, a larger room for surgical instruments with eight large glass cases, and lastly, a dressing room for the operator and his assistants.

The Sim's operating room is exclusively devoted to observations in general surgery. There is another one, less sumptuous and still absolutely admirable, situated between the Sim's building and the Roosevelt Hospital proper ; it is the McLane pavillion for gynæcological observations. Here again, the marble floor and walls are of the most resplendent whiteness, ventilation and lighting perfect. I have no hesitation in saying, more hospitals will certainly be erected in the future ; gold distributed by intelligence may reach results perhaps equal, but never superior, to what exists at Roosevelt Hospital.

The Post-Graduate Medical School cannot boast of such luxurious appointments, but it is there that the physician must go and register if he wants to acquaint himself perfectly with the daily surgical movement going on throughout the city. In fact, besides daily lectures given every hour upon all the branches of medical science, operations are every day performed in the building by the leading surgeons of New York, namely, Phelps, Edebohls, Nillsen, Emmet, Foerster, Abbe, Kelsey, Boldt, Dudley, Willy-Meyer, Waldo, etc. Every morning we are notified, on a blackboard nailed on the wall, of the surgical operations which are to take place that day in all the hospitals ; their nature is mentioned as well as the hour at which they will be performed and the name of the operator. We only have to choose, there are some for every taste.

The physicians may also, during their leisure, peruse the various periodicals placed at their disposal in the reading room. The Post-Graduate Medical School is the mother house, as it were, of the

medical men, strangers as well as residents in the city, and I am happy to pay publicly here this tribute of gratitude to Mr. Farrell, the Superintendent, for the urbanity and affability with which he receives all those who call on him, and for the services of every kind which he is always ready to render them.

What shall I say next of surgery, as it is understood in New York, and especially of abdominal surgery ?

Well, the whole of it is contained in those two words : Asepsis and Antisepsis. In other terms, the germ theory is universally adopted, and this *consensus medicorum* is a resplendent confirmation of the exactions and truth of the doctrine of those who have inaugurated the marvellous era of progress which has revolutionized medical science within the last fifteen or twenty years. The men who are still refractory are getting less and less numerous ; they constitute but an insignificant portion and dare no more speak out their scepticism with regard to theories sanctioned by experience in every part of the world.

The germs which are the origin of all complications of wounds swarm everywhere around us, and amongst them, the most formidable are the streptococci and staphylococci which carry with them suppuration, septicæmia and death. It is of an absolute necessity, before every operation, that they should be destroyed on all objects which will come in direct or indirect contact with the wounded tissues of the patient : this is asepsis. After the operation, we must erect a protective barrier against their possible invasion by means of substances deadly to them : this is antisepsis. Here is, in short, the principle upon which all surgeons keep their eyes fixed. The means of obtaining this end vary according to the surgeon and the materials at his disposal, but the central idea is the same for all : thorough sterilization. But no negligence in the details ! Here the chain is not stronger than its weakest link ; all routine is unmercifully banished everywhere. Everything is carefully reasoned, from the preparation of the patient to the sterilization of the hands of the operator, and this is the way, in my humble opinion, that we must understand antisepsis : it must be absolutely perfect or else it becomes totally illusive. Everything must be sterilized ; instruments, ligatures, dressings, the patient, the operator, his assistants and the nurses ; but from that very moment, none of the parts or objects which have been sterilized must come in contact, should it be but momentarily, with any part of the body or any object which is not sterilized. Thus, you will never see in surgical services in New York, in the course of an operation, an assistant with sterilized hands

remove the lid of a case, the stopper of a bottle, or put his hands on any part of his face. So much the worse if perspiration blinds the operator, or a pruritus whatever annoys his eyes, nose or ears, there is always near by a charitable nurse who will nicely relieve these temporary inconveniences.

These minutiæ may seem ridiculous to some sceptics ; well, I shall give to them the same answer as Paschal did to the unbelievers who doubted the religion : " If you do what religion teaches you, supposing it is false, there is not much harm, but what an ill-luck not to believe in it and disobey, if it should prove to be true !"

Thus, ridicule, doubt and laugh at the teachings of the germ theory if you like, still obey all the same. Should the principle upon which it reposes be erroneous, you shall have, after all, the satisfaction of having been scrupulously clean, which is a virtue in surgery as well as in all the other actions of life.

With regard to the surgeons themselves whom I had the good fortune to see at work, I will not surprise you in saying that I found their dexterity simply marvellous. Nothing astonishing when we come to think of the way they are recruited in the hospitals. The younger ones continually have under their eyes their masters whom they watch operating every day. Later on, when they handle the knife on their own responsibility, they are already broken in to the work and they naturally try to surpass their elders, and are carried away by that legitimate emulation towards an incessantly progressive course. And what a beautiful organization in the surgical departments of their hospitals !

During an operation there is a place for every one, and every one is at his place. An abdominal section in these large establishments is something solemn, admirable ! Everything has been scrupulously prepared by the nurses and assistants. The boilers, sterilizers, are in full blast and contain the dressings and articles which will be wanted. The instruments purified, are disposed in order in receptacles covered with sterilized towels. The patient, anæsthetised in the other room, has been carried in and put on the operating table. In a twinkling of an eye she is prepared, and the field of operation is limited with sterilized towels. The operator, surrounded by his assistants, gets ready to begin ; complete silence everywhere. The orders are short, precise, given in a low voice and immediately obeyed. The operator whispers the name of an instrument, the assistant entrusted with this function nimbly presents it. Blood flows, quickly a forceps is applied by another assistant. A sterilized pad is wanted, a mere sign is at once understood by the trained nurse who hands over the desired

object. The water in a basin is tinged with blood, another nurse immediately changes it without being told. The first assistant, intelligent and not jealous, helps the operator and facilitates his work. Everybody is at his post and thinks of it alone and never, during the course of an operation, is a fault against asepsis committed.

There are two classes of operators : the slow and quick ones. The latter operate in a brilliant manner and hasten their work to shorten the duration of anæsthesia. The others take their time, they feel, examine and are careful to do well what they are doing. Which do you prefer ? I have no hesitation in saying that I am in favour of those who operate slowly. Their work certainly lacks of the brilliancy which characterizes the doings of the others, the operation will likely last a few minutes longer, but given the conditions of security with which anæsthetics, and especially ether, are now-a-days administered, what is the use of hurrying ? It seems to me that the patient is far more exposed to the evil consequences of a fault committed through a too great precipitation than to the illusive dangers of a prolonged anæsthesia. Will I cite an example ? I was present, one day, at an abdominal hysterectomy, performed in one hospital that I will not mention, by one of those brilliant and dashing operators. Indeed, the scalpel was flashing, handled in a dazzling manner by the skilful gynæcologist. The abdomen had been opened by a single stroke, the broad ligament, on the right side, had been ligatured and severed at its superior part. A hemostatic forceps had grasped the uterine artery, and the knife was resuming its nimble action. Suddenly a gush of arterial blood spouted out of the wound, the uterine artery had been divided between the proximal end and the clamp.

I had never in my life seen a uterine artery bleeding, and I can tell you, gentlemen, I do not wish to ever find myself face to face with such a hæmorrhage and placed in similar conditions. The artery being deeply situated in the pelvis and submerged under a stream of blood which sponges and pads were unsuccessful in staunching, it was useless to think of applying a ligature on the bleeding vessel. A long hemostatic forceps had to be sunk at random down to the bottom of the wound, endeavouring to seize the artery buried in the deep tissues. The operator at last succeeded in doing so, but after minutes which seemed so many hours to the anxious persons around. The patient was beginning to show signs of collapse, they had to resort to hypodermic injections of strychnine ; a stimulating enema was administered, and five to six pitcherfuls of saline solution were poured into the abdominal cavity.

Well, do you not think that this hæmorrhage, evidently due to the excessive precipitancy of the brillant operator, will jeopardize the good results of the operation a great deal more than would have done an additional half hour to the duration of anæsthesia.

With regard to anæsthesia, in all the hospitals of New York ether is used, administered in a cone covered with a towel. I saw Clover's inhaler used at the German Hospital only, and a modified apparatus at that, provided with a tap at the superior part through which fresh air was allowed to penetrate without removing the mask from the face. Dr. Boldt, at St. Mark's Hospital, is the only one who sticks to chloroform, at least such was his practice when I first met him in 1893.

" You are using chloroform, I said to him one day, have you never had any accidents with it ?" " Yes," said he, " I had one case of death with chloroform, but I had two with ether."

The process in use for the sterilization of the patient's abdomen and the hands of the operator and his assistants is very much the same everywhere. Vigorous frictions with soap and warm water during at least five or ten minutes and then one minute immersion in 1-1000 solution of sublimate. I have had no opportunity of seeing them use permanganate of potash and oxalic acid, according to the method so much thought of in Johns Hopkins Hospital of Baltimore. Almost every operator does the abdominal section with the woman in the Trendelenburg position, some standing on the right of the patient, others on the left, the latter tracing their incision from the pubes towards the umbilicus. This mode of proceeding seems to me to be the easiest and most rational. It is needless to say that no antiseptics whatever are allowed to penetrate into the abdominal cavity, sterilized water only is used. This I believe to be the practice of all abdominal surgeons without exception. Iodoform itself, in several hospitals, seems to be discarded, and surely I would not be the one to call back that disagreeable drug. There seems to be a tendency to employ sterilized gauze altogether. However, a certain number of gynæcologists have remained faithful to the old odoriferous drug.

The sutures in vogue are of catgut, silk and silkworm gut. Silver wire is rarely employed ; I saw it used but once by Dr. Craigin at Roosevelt's. Catgut, as ever, is accused of a great deal of evil doing, and they are still in search of an ideal method of sterilizing it. Thus, at the German Hospital, they are looking for a safer process than Kocher's, and are trying at present catgut sterilized by boiling for an hour in alcohol at 95°. According to Waldo, this method is as defective as others, he has tried it and has had bad results with it. The surest means, he says, of obtaining perfectly aseptic cutgut, consists

in its immersion in a solution of 1-1000 of sublimate in ether, in which solution it is kept until wanted. I may say that I have tried personally the process of sterilization of catgut by boiling in alcohol. But we must not forget that alcohol boils at 117°, and catgut submitted to that temperature only once cannot theoretically be considered as perfectly disinfected. Therefore I thought it safe to submit it to fractional sterilization, that is, boil it the first day for one hour and half an hour the two following days. The first day, all vegetative forms of bacteria will be destroyed, but a certain number of spores will escape destruction. They will grow out into vegetative form though during the twenty-four hours of interval between the heatings and be killed by the second and third boilings. Then only we may be reasonably sure of having secured a perfectly sterile catgut. But unfortunately, this process rots the catgut which, although in some parts quite resistant, becomes as a whole totally unreliable.

Now, gentlemen, if you will follow me I will take you to some of the principal hospitals I visited, and will let you know the facts worthy of interest that I have observed.

We shall begin by Brooklyn, and let us enter St. Mary's Hospital. This hospital is under the direction of nuns, and the medico-surgical department is attended by nurses trained in a school attached to the hospital. The day I went there, I expected to witness an abdominal hysterectomy which I was told was to take place that day. Before we were shown to the operating room, the head nurse invited us to put over our clothes a sterilized jacket, a rule to which must submit all those coming from outside to assist at an operation. In fact, every one in the operating room, wore the same accoutrement, the visitors, nurses, assistants, etc. Only one made exception, it was the operator himself who, at the time of my visit, was then examining the patient already anæsthetised. I wonder still what was the reason of that singular anomaly.

The chief surgeon of St. Mary's Hospital is Dr. J. Byrne, a charming old man, who tendered us the most gracious welcome. He is the author and enthusiastic admirer of a special method of vaginal hysterectomy in malignant diseases of the uterus. He performs the whole operation with the galvano-cautery method without knife or scissors. To him, it is the ideal method of removing the uterus per vaginam, the only one which assures perfect hemostasis and, above all, an absolute asepsis. He contends that utero-vaginal structures which have been severed by the galvano-cautery are left in a state more favourable for restoration to a healthy and normal condition than when either scalpel or scissors have been employed. There is total

absence of pain and fever following the operation, and the return of the disease is exceptional, or at any rate a great deal more tardy than after operations performed according to other methods.

Let us now go back to New York, please. It is 10 a.m., and Dr. Nillsen is giving his gynæcological clinic at the Post-Graduate School. A woman lying in the dorsal position, and covered with a sheet to save her modesty, is brought, on a rolling table, into the amphitheatre. The professor examines her. It is one of those common cases of daily occurrence in the practice of every physician, multipara, history of several miscarriages, lumbar and abdominal pains, metrorrhagia, leucorrhœa, frequent micturation, bad digestion, etc., etc. Cause : endometritis, laceration of the cervix, relaxation of the vaginal walls. Treatment—Curetting, trachelorrahaphy, perineorrhaphy and then hot douches.

Dr. Nillsen operates with his patients in Sim's lateral position. He never does curetting with a dull curette, but always uses a sharp one. In operating for trachelorrhaphy, he uses and praises very highly Skene's hawk-bill scissors, insisting upon the necessity of holding well out the lips of the cervix by the means of curved vulcellum. He sutures the cervix with straight needles and uses carbolated waxed silk prepared according to Skene's method. With regard to douches, he dwells strongly upon the necessity of prolonging them for at least half an hour, and repudiates the rubber fountain syringe, recommending a simple pail supplied at the bottom with a tap, to which a long rubber tube is attached.

Let us hurry now and take the elevated railway on Third Avenue. I want to take you to the other end of the city to the Lebanon Hospital, situated on 150th street. This hospital is only five or six years in existence, and was formerly occupied by an Ursuline convent. It contains 350 beds. The programme of operations is very attractive at the time of our visit. Dr. Waldo intends doing two curettings, one trachelorrhaphy, one amputation of the cervix and two perineorrhaphies. Dr. Waldo is one of the most brilliant and most sympathetic amongst the younger gynæcologists of New York. I had the honour of being acquainted with him in 1893, when he was assistant to the late lamented Carroll Lee at the Post-Graduate. Certainly he has lost nothing of his exquisite politeness and the amiable manner with which he receives the numerous physicians who crowd around him to admire his surgical skill, and profit by his experience. Waldo, like Nillsen, and I may say almost every gynæcologist in New York, operates with his patients on the side. He curettes with the sharp curette until he hears the tissues grating, and then dilates with a double-bladed metallic dilator. The Hanks dilator, a modifi-

cation of Hegar's, seem to be used by the gynæcologists of the Women's Hospital only. He does trachelorrhaphy with ordinary scissors. He slits the angles in the median line and then removes, on each side, a triangular strip ; and, always with the scissors, he cuts down through the cicatricial tissue until he sees a freely bleeding surface which shows that he has reached the sound parts of the cervix. With half-curved needles, he sutures the pared surfaces with silkworm-gut, taking care to thrust the needle at a good distance from the edge. If the cervix is thickened and indurated, he makes a circular amputation, and in entering he causes the needle to penetrate from right to left on the vaginal mucosa, the point of the needle coming out through the cervical mucous membrane to enter the other side and come through again on the left vaginal mucosa. Two similar sutures are made and then he unites the upper and lower parts of the cervix by imbedded sutures to avoid pockets which would prevent accurate union.

Schrœder's operation seems to be rarely done in New York. In France, on the contrary, it is more frequently performed than Emmet's trachelorrhaphy.

Waldo repairs the relaxed perineum in the twinkling of the eye. He grips the top of the rectocele with a tenaculum and two other tenacula are fixed, one on each side, on a level with the caruncles, He stretches the tissues, spreading out a triangular surface on the posterior wall of the vagina, which he causes to bulge forward by means of the left index finger introduced into the rectum. He then makes, at the posterior commissure, a small incision at the union of the skin with the vaginal mucous membrane, cutting with the point of the scissors. Sliding up the scissors through the submucous layer he opens the blades and separates the mucosa in every direction. This he excises afterwards following the sides of the triangle. He then unites the pared surfaces by means of the Cleveland suture. Very ingenious that suture and of the most rapid application. I will undertake the difficult task of describing it, the words right and left being used with regard to the operator, not the patient.

He uses a long slightly curved needle threaded with a long piece of catgut. The needle is made to enter on the right side near the tenaculum fixed on the caruncle. He creeps under the tissues along the border of the denuded triangle up to the top of the rectocele. The needle then comes out and goes in again downwards, always imbedded in the tissues, and follows a line situated midway between the median line and the left side of the triangle. Out comes the needle to the left of the median line at the base of the pared surface, in it goes again on the right side of the median line at a point symmetrical to

the point of exit on the left side ; up it goes under the tissues between the median line and the right side of the triangle to the top of the rectocele again, where it comes out. Lastly, it is entered in the tissues and pushed downwards from the right to the left, following the left border of the triangle to make its final exit on a level with the right caruncle (left of the operator) exactly opposite its point of entrance on the other side. In pulling upon the ends of the thread, the tissues are approximated, puckered up not unlike Stoltz's suture in anterior colporrhapy, and the suture is tied.

This very brilliant process is done in a very short time and restores the perineum in an irreproachable manner. The patient is kept in bed for ten days and is allowed to pass her own urine, as they say over there, that is without the use of the catheter.

I saw also Dr. Waldo perform laparotomy for an ovarian cyst. In opening the cyst an enormous quantity of purulent serosity spurted out. The suppuration of the cyst was the result of tapping previously done by the attending physician. Waldo rightly censures the detestable practice of puncturing ovarian cysts, which is the most common cause of their purulent transformation. He tries to explain the result by the supposition that the deep layers of the epiderma containing germs, e.g. staphylococcus albus ; the latter are not destroyed by the most vigorous scrubbing of the skin, and are carried in by the trocar and contaminate the parts contained in the abdomen. The hypothesis may be correct, but, in my humble opinion, I believe that generally these cysts suppurate because the tapping has not been done according to all the rules of strict antisepsis. We either neglect to completely sterilize the skin of the abdomen by sufficient scrubbing, or the trocar, or the hands of the operator have not been properly prepared. At any rate, with this patient, the cystic cavity contained pus, the walls of the cyst were everywhere adherent to the abdominal parietes ; to attempt the separation of the adhesions and the ablation of the sac would have been imprudent. After having carefully emptied the cavity and united the edges of the cyst to the lips of the abdominal incision, abundant irrigation was made with sterilized water. Then long parallel bands of iodoformed gauze were packed down to the bottom of the cavity and the ends left loose and folded over the incision and covered with absorbent cotton. The whole was firmly held in place by adhesive plaster and a many-tailed bandage, cut out somewhat similar to Soullett's apparatus for fracture. At the end of two or three days the iodoformed gauze will be changed, and then the dressing done every day until cicatrization of the cavity is complete.

(To be continued.)

Clinical Reports.

A HAIR-PIN IN A GIRL'S BLADDER.

By Stanley S. Cornell, M.D., C.M., Athens, Ont.

Miss G., a tall, plump, anæmic girl, aged 19 years, came to my office January 26th, 1893, and informed me that during the previous six days she had experienced pelvic pains while urinating or vigourously exercising; that the pain had developed suddenly, but was associated with no abnormal discharges from the genital or urinary organs; and that her symptoms were caused by the presence of a *hair-pin* that had been *lost* in her *vagina* upon the sixth day before her consultation.

The distress accompanying urination was so great that the patient avoided drinking water or tea for the whole period of her pains.

The patient was reticent concerning the origin of her suffering, but admitted the following history: Believing, from some obscure vaginal sensation, that her monthly flow was about to be established, the patient introduced the rounded base of a hair-pin within the vagina (?) in order to confirm or refute her impression, involuntarily "drew a long breath, and lost the pin."

Physical Signs and Treatment.—On digital examination of the vagina, the examining finger detected a limited and ill-defined point of resistance in the anterior vaginal wall. The patient was then anæsthetized, and Thompson's searcher introduced into the bladder. This procedure resulted in the contact of the point of the instrument with an apparently small object from which emanated a clicking sound. An attempt to remove the foreign body by means of a pair of uterine dressing forceps having failed, I introduced Goodell's powerful dilator along the whole length of the urethra, and performed rapid dilatation. Although the result of this manœuvre rendered an extreme dilatation of the upper third of the urethra unavoidable, yet it enabled me to pass my index-finger through the canal to a point just within the neck of the bladder. I now perceived that one arm of the hair-pin was superficially imbedded in the mucous membrane at the base of the bladder, and, tracing it upward, concluded that the base of the hair-pin lay behind the symphysis pubis. The examining finger was carried up to the symphysis and against the rounded base of the pin; the palmer surface of the finger was then turned toward

the sacral promontary, and the finger-nail introduced between the symphysis and the base of the pin ; a backward movement of the finger caused retroversion of the pin, while gentle forward traction caused it to sweep the posterior wall of the bladder and follow the urethral curve till its expulsion was completed.

The extraction of the hair-pin was to me a difficult procedure, and consumed fully a quarter of an hour.

The hair-pin was made of brass, and was $3\frac{1}{8}$ inches in length, its greatest breadth between the arms being $\frac{5}{8}$ inch, and its least breadth $\frac{1}{2}$ inch. The arms of the pin were powerful bars $\frac{1}{4}$ inch in circumference. The pin was coated in its entirety with a layer of gray alkaline mucus.

Traction with the uterine dressing forceps had resulted in the bending of one arm of the pin at an obtuse angle, and this, no doubt, caused a somewhat deeper implantation of the other arm in the vesical mucous membrane. Had such implantation occurred to a much greater extent than it did, perforation of the bladder at the base would have been the result.

Not more than a drachm of blood escaped from the urethra during and after the extraction of the pin.

The patient was put to bed for five days upon a limited diet. Water was given in quantities to satisfy thirst. No untoward conditions developed, and the temperature rose to 100° F. on only two days. The unfortunate condition of dilatation of the upper third of the urethra followed the spreading of the dilator, and was associated with inability to resist the urinary pressure within the bladder beyond a variable degree ; but this gradually subsided during seven months treatment with nux vomica, belladonna and iodide of iron.

Ephemerides, 1895.

By William Osler, M.D.

III. Geographical Tongue.

Rayer's lingual pityriasis—eczema of the tongue, exfoliative glossitis, of other writers—is not a very uncommon affection, and rarely of much moment, lasting from a few weeks to a month or two. Occasionally, as in the following cases, it is very protracted and intractable, and a source of great worry.

Mrs. W., aged 65, wife of a physician, seen on several occasions throughout the year. She first came under my observation on March 3rd, 1894, complaining of a peculiar disease of the tongue, associated with a burning sensation. The condition had persisted at intervals since April, 1893. I dictated the following note at her first visit: "The tongue is not enlarged. The dorsum presents a number of irregular, somewhat serpiginous abrasions, the edges, for a couple of millimetres, look whitish and infiltrated. The papillæ, however, are not destroyed, and it is only the superficial layer of epithelium which is removed. About a third of the dorsum is occupied by these patches. She says that sometimes they are entirely covered by the greyish white material. Towards the left side of the tip there are three or four rounded patches with small, red, central depressions which look like the beginning of the trouble. There is no induration. Far back on the left side there is a patch in which there are one or two small hæmorrhagic papillæ, but here, too, there is no induration."

She says that when first noticed the disease was at the tip and was not painful. She had been of late greatly distressed about it, particularly as she has dreaded that it might be the beginning of a cancer. Her husband had taken her to a number of physicians without getting any satisfactory account of its nature, and a surgeon had suggested that it might be the commencement of malignant disease.

As there was evidently a strong nervous element in the case, I assured her that it was not likely to lead to anything more serious. The application of a twenty grain solution of nitrate of silver twice a day gave her great relief, and for several months she thought she was cured. In September of 1895 the burning feeling in the tongue returned, and the patches were again very well marked.

On January 24th, 1895, the tongue was covered with irregular

serpiginous patches with depressed, smooth, denuded centres and greyish white margins. The use of the nitrate of silver was resumed, and she was ordered iodide of potassium. She improved very much, and throughout the summer remained well. In October the trouble began again. The burning feeling was very distressing, and hot things and many articles of food caused very unpleasant sensations.

I saw this patient a few weeks ago, and she was still troubled with occasional patches.

The condition has now recurred at intervals for nearly three years.

A few weeks ago I received a letter from a naval surgeon of the Pacific Squadron, asking information about the case of a brother officer. His description is so accurate and careful that I quote part of it, inasmuch as the diagnosis is to be readily made from his account. "The papillæ of the tongue are very prominent; three longitudinal fissures traverse the organ; one in the centre; one on either side, each with lateral fissures. Opaque, whitish patches, linear and semicircular in shape, begin in the fissures and soon spread over the dorsum, always with semicircular outlines. The patches grow larger, widening as they pass, until they reach the under surface of the tongue, when they disappear. The mucous membrane over which the patches have passed and are about to pass appears perfectly normal. Fresh patches are sure to form again. From four to six days is the natural existence of any one of them. Curiously enough, the patches are limited to the right half of the tongue. There is no pain, but the patient complains of a dry, chipped feeling, especially in the morning, when the white patches are more marked. The suffering is more mental than physical, inasmuch as the patient fears the development of an epithelioma."

The irregular patchy appearance of the surface of the organ gives a certain resemblance to a map—hence the name "geographical" tongue. I have never known an instance in which it was so persistent and the cause of so much suffering as in Mrs. W.

IV. Buccal Leucoplacia.

Buccal psoriasis, or keratosis mucosae oris, offers many perplexing problems to the physician. The two cases I here report illustrate very different types of the disease, the one characterized by much irritation, sometimes swelling, and an extensive patchy leucoplacia; the other represented by a small, opaque white, corn-like thickening.

Lieut. A., U.S.N., aged 45, was referred to me May 10th, 1895, by Dr. Beyer, complaining of a sore tongue of six years duration. The patient first noticed a little 'canker sore' on the right side of the

tongue. It soon disappeared, but shortly afterwards the tongue became so painful and swollen that he could scarcely eat.

The patient has always been a vigorous, healthy man. In 1881 he had a primary, syphilitic sore, with very slight eruption after it. He was thoroughly treated ; married in 1889 ; has no children. He has been a smoker for years, but on account of his tongue has had to give it up except at intervals. In the summer of 1892, a moist, patchy eruption came upon the head, and appeared at intervals for nearly two years. With this exception he has had no signs of syphilis since 1881. He has been a temperate man ; he has never had the gout. The trouble with the tongue has occurred at intervals since 1889. The condition on examination was as follows :

He is a healthy-looking man of good colour. There are three little nodules on the margin of one ear, not chalky. There are longitudinal ridges on the nails. The mucous membrane of the lips and of the gums is normal. On each side, just within the frœna of the lips the mucous membrane for 1 cm. from the edge is thickened and greyish white in colour. This condition, the patient says, comes and goes with the soreness of the tongue ; and these patches may appear at the angle of the mouth before the tongue gets sore. They have extended so as to be visible at the outside. The mucosa covering the cheeks and palate is perfectly normal.

The dorsum of the tongue presents one long central fissure with numerous lateral ravines. On the left half there are three parallel fissures, on the right two longitudinal furrows. Towards the root of the tongue the fissuring is very irregular. The general surface is reddened and the papillæ are well seen, nearly all of the simple form. In the central portion and along the median fissure the mucosa is smooth, glossy, and in places thickened, here and there quite white. Far back, on the right side there are several well marked patches of leucoplacia, and a small, firm, projecting body, like a wart. The margin of the tongue and the lips are smooth. The mucosa looks a little denuded, but not specially red or raw. At the left margin of the tip there is an opaque, white plaque. On the under surface of the tongue on the left side near the frœnum there is a small, slightly projecting, opaque portion of the mucosa.

He says that at present the tongue is nearly well. He gives, however, an account of the remarkable influence of certain substances. Smoking in the present state of the tongue does not appear to irritate it in the slightest. Milk, coffee, whiskey, or any alcoholic drink excites superficial inflammation with a good deal of swelling. In some of these acute attacks the tongue becomes so much swollen that he can

scarcely masticate. He has to be particularly careful about his food, taking a very plain diet. The influence of milk is, he says, most extraordinary. He has tried it a dozen times within the past four years, and on each occasion it has excited a good deal of swelling and soreness of the tongue. If after an indiscretion the tongue becomes swollen, he takes calomel, from two to four grains for three nights in succession, and the condition of the tongue begins immediately to improve. The present state causes him no anxiety whatever ; his only worry is lest any food should accidentally light up the superficial glossitis, as during the acute attacks the tongue is swollen, red and very painful. He does not think that the white patches have increased much within the past two years.

The following case represents a very different form of leucoplacia, one to which the term lingual corn is more appropriate.

Captain X., of the British Army, aged 41, consulted me March 12th, 1895, about a patch on the dorsum of the tongue, which had been worrying him for six months.

He is a large framed, healthy looking man. He has always been very well and strong. He has been a moderate smoker (pipe); lately he has been smoking cigars, one or two a day.

About twenty years ago he had a soft chancre which was followed by buboes, but there was no secondary rash. About two years ago he had a little raised sore on the under surface of the left side of the tongue, which caused him a good deal of worry. There was some doubt about its nature, but he was given iodide of potasium and it disappeared gradually.

The present trouble began about six months ago, when he noticed the spot about to be described. He does not think it has increased much in extent.

On the right side of the tongue, about 4 cm. from the tip, and 2 cm. from the median line, there is an opaque white spot, exactly 5 mm. in length by 4 mm. in width. It is not raised above the surface and is not ulcerated. Behind and at the sides it passes uniformly into the mucosa ; in front it is separated by a small, narrow groove. It is everywhere opaque white on the surface, perfectly smooth, feels horny, not rough, and on pressing it between the thumb and finger laterally it apparently has no great depth, and it does not feel indurated. It resembles a small, localized spot of leucoplacia. Just behind it there is one little accessory spot about half the size of a pin's head. The other parts of the tongue are perfectly smooth and clean. The glands beneath the jaw of the right side are not enlarged.

A thin shaving, taken from the spot, showed nothing but flattened

scales of epithelium. The patient has had, at intervals, for four or five months, pains in his bones, particularly at night. He has been taking iodide of potasium for between two and three months, but without special benefit, and without any change in the local condition.

The patient was given a favourable prognosis, and urged to continue the iodide for three months, and then, if not better, to have the spot excised.

The association of leucoplacia with persistent smoking has long been recognized. (Smoker's tongue.) As in the cases I here report syphilis is a common antecedent, though the relation between the affections is very obscure. One of the most obstinate and extensive instances I have ever seen was in a man who had not used tobacco, and had not had syphilis. The mucous membrane of the cheek on the left side, almost from one alveolar fold to the other, was represented by an opaque white patch of about the appearance and consistence of a 'milky patch' on the pericardium. The condition caused a great deal of mental worry and distress, and the patient consulted several physicians both in this country and London without getting any satisfaction as to the nature of the trouble. After lasting for more than a year it gradually disappeared and he has never had a recurrence.

A very much more serious matter is the relation of these patches to epithelioma. About one in five of Butlin's cases of epithelioma were preceded by leucoplacia. With such a percentage, when the patches are localized, as in the second case I mention, excision should be advised.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Arthritis and Endocarditis.

ALEXANDER HAIG. "Arthritis and endocarditis due to drugs which diminish the solvent powers of the blood for uric acid."—*British Medical Journal*, December 28, 1895.

In this article Dr. Haig asserts, with an unusual degree of positiveness, that arthritis and endocarditis of so-called rheumatic origin are solely due to the quantity and solubility of uric acid in the blood, and that this quantity and solubility are absolutely and completely within our control. So soon as this is recognized, what is now crippling and decimating our children will be prevented, chiefly by the regulation of diet.

So long as uric acid is held in solution in the blood, *i.e.* so long as it is not found in excess of normal, nor the alkalinity of the blood diminished, so long do rheumatic signs and symptoms fail to appear. The disturbance of this balance precipitates the attack.

The conditions which favour rheumatic attacks, as exposure to cold after heat and fatigue, wetting through and getting hot, he regards as so many causes increasing the acidity of the blood, or in other words, diminishing the alkalinity of the blood, thus precipitating the uric acid.

In a case of pulmonary tuberculosis in which he gave nitro-hydrochloric acid with strychnine, in a case of chorea treated by arsenic, and in a case of broncho-pneumonia with a systolic murmur at the apex, eventually treated with dilute sulphuric acid and digitalis, he claims to have seen changes occur definitely referable to these drugs—in the first case arthritic pains, with rise of temperature and development of a systolic murmur; in the second case a post-systolic murmur; in the third case a rise of temperature, which fell with the setting aside of the acid. These are all regarded as cases in which the drug mentioned diminished the alkalinity of the blood or diminished the

excretion of the uric acid in the urine, and thus favoured its precipitation—the cause of the arthritis and endocarditis.

Salicylates and alkalies do not work well together, since salicyluric acid is soluble in more or less acid fluids, while the other compounds of uric acid are not so. For this reason the salicylates are most effectual in the acute cases of arthritis, since here the alkalinity of the blood is low.

The author's words may be quoted, showing how strongly he believes in the causative action of uric acid. He says, " I make bold to say that every drug that has been used with benefit in acute rheumatism in the past, and every drug still to be discovered that may be used with benefit in the future, will be found to do good in direct proportion to its power of dissolving and eliminating uric acid. The straightforward and easily verified chemistry of uric acid will replace the hypothetical microbe, and gout and rheumatism will be regarded as mere modifications of one and the same disease—arthritis due to uric acid."

Chlorosis.

Ralph Stockman. " Observations on the causes and treatment of chlorosis."—*British Medical Journal*, December 14, 1895.

According to Dr. Stockman's view there are but two great and direct causative factors in chlorosis, viz., blood loss and insufficient supply of iron in the food. Other ascribed causes may contribute to produce either one of these two causative factors, and as such cannot be considered as direct agents.

The author holds that Virchow's view of congenital hypoplasia of the arterial system as a cause of chlorosis is contradictory, for since the condition of chlorosis is transient, so also must the cause be transient.

The theory supported by Sir Andrew Clark and others concerning constipation and resulting ptomaine absorption lacks support in facts.

Now, since hæmoglobin deficiency is the chief characteristic in the blood of chlorotic patients, special interest attaches to the observation of this constituent of the blood. Sex influences it normally. In women it is 8 to 10 per cent. less than in men, therefore the blood of women is less able to stand any drain upon it than that of men.

Age also acts as a factor, since from 15 to 25 not only is the hæmoglobin less, but the number of red corpuscles is also less than at other ages. This is the period of rapid physical development, and during this time also the menstrual function is established. Growing girls and chlorotic individuals very frequently present signs of ill-performed

digestive process, with constipation. This implies the consumption of an inadequate amount of food and therefore an inadequate amount of iron.

Condition of Digestive Organs—Healthy persons consume about $\frac{1}{11}$ to $\frac{1}{6}$ grain of iron daily, while the analysis of the dietary of four chlorotic girls showed only $\frac{1}{30}$ to $\frac{1}{20}$ of a grain daily. The amount of iron excreted is estimated at less than 6 mg. daily, or about $\frac{1}{11}$ grain.

By experiment Dr. Stockman establishes the relation between the amount of hæmoglobin in the blood and the amount of iron in the food taken. Many others corroborate this observation.

The loss of blood by depleting the system of iron, and thus preventing a reserve deposit of iron in the liver and spleen, interferes with a speedy recovery,—a restoration to its normal richness in hæmoglobin.

Women in a healthy condition are quite able to withstand the menstrual hæmorrhage, the reserves of iron favouring recovery, but the condition is quite different in young and growing girls.

The explanation of those cases of chronic relapsing chlorosis is not made with any reference whatever to Virchow's theory of arterial hypoplasia, but the author refers them to insufficient food supply, or excess of blood loss, or to these two causes combined. There may be deficiency in blood forming activity.

The obstinate anæmia of gastric ulcer affords an example of the combined working of these two great and direct causative factors,—blood loss and insufficient dietary. The chlorosis of boys, of non-menstruating girls, as well as the anæmia of the menopause, are referred to dyspepsia, insufficient food and excessive blood loss.

Having thus discussed the causes, the treatment of chlorosis forms the next division of this paper, which may be reviewed under two headings,—prophylaxis of chlorosis and treatment of the condition itself.

In considering the prophylaxis he says any undue menstrual losses are to be checked by ergot, or sometimes hot douching. And of more importance still is the cultivation of an habitually good appetite and vigorous health.

In the treatment of chlorosis itself he recommends iron, in some form, the choice of preparation as well as the mode of administration to be made according to the conditions present. Manganese and arsenic Dr. Stockman regards as unnecessary. A diet containing much flesh is indicated, as such food is richer in iron than farinaceous food. Fat, in the belief that it hastens blood formation, is recommended by Nasse, Bradford and Ebstein. In order to secure results in cases of

severe anæmia rest in bed must be enjoined, thereby enabling the food and iron supply to be used for purposes of nutrition.

If the appetite and digestion are at fault, treatment must be directed toward this system in cases of chlorosis, since recovery depends so much upon food assimilation.

The Use of Antiseptics in Infantile Diarrhœa.

W. Soltau Fenwick. "The use of antiseptics in infantile diarrhœa." —*British Medical Journal*, December 21, 1895.

In this paper, read before the British Medical Association at its last session, the subject of etiology in intestinal sepsis is considered and a brief review of the more important antiseptic drugs adapted for medicinal use is offered. These the author divides into two classes according as they are soluble or insoluble in water. These two classes are separated by yet other characteristics than that of solubility or insolubility in water. Those drugs which belong to the former group possess germicidal and toxic properties in direct proportion to the dose in which they are administered, while those of the latter group remain almost unaltered in the stomach, where they exert but little influence on the fermentation processes in that organ. The decomposition which they undergo in the intestines often results in products highly poisonous.

The drug of Dr. Fenwick's choice is resorcin, and for the following reasons:

1. It is extremely palatable to children.
2. It is devoid of toxic properties, differing in this respect with carbolic acid.
3. It is very inexpensive.
4. He has found it highly satisfactory in a large number of cases of intestinal dyspepsia in infants and young children, concerning 120 of which he gives interesting and convincing statistics.

He adds that in those chronic cases where follicular ulceration of the large intestine exists the drug may be supplemented by such remedies as benzol-naphthol.

W. F. Hamilton.

Surgery.

Post Typhoid Bone Lesions.

Parsons. "Past typhoid bone lesions."—*Annals of Surgery*, November, 1895.

Among the sequelæ of the continued fevers, the lesions of bone have long occupied a place of prominence. In the Toner lecture in 1876, W. W. Keen quoted forty-one cases, thirty-seven of which had followed typhoid fever. In the same year Sir James Paget described most fully, from the clinical stand-point, an inflammatory condition of bone occurring at various periods after typhoid, pursuing a more or less chronic course, with but little tendency to spontaneous recovery, except after long periods of time. He had observed some seventy cases, all after typhoid fever.

In 1873, Murchison reported necrosis of femur, tibia, and temporal bone following the same disease and, later, Affleck described periostitis of the humerus in two cases and of the tibia in another.

Other observers have also reported similar cases.

With the identification of the Eberth-Gaffky bacillus as the specific cause of typhoid fever, the nature of these bone lesions has been investigated more thoroughly, with results which have established a relation between them and the primary typhoid attack.

Ebermaier, in 1887, obtained from two cases of suppurative post-typhoid periostitis the bacillus of Eberth in pure culture. Orloff, in 1889, in a similar case of periostial abscess, six months post-typhoid, found this bacillus alone. Achelme, Melchair, Galgi, Eberth and others have had a similar experience.

There are many cases on record in which the infection has not been with the typhoid bacillus, but with the pyogenic cocci, or the less frequent pus producers. Nettes describes eleven cases of ostitis, five of which showed the pneumococcus, one the pneumococcus and staphylococcus, and five the streptococcus.

While it is certain that mixed infections do occur in the post-typhoid bone lesions, it must be admitted that the evidence of careful bacteriological investigation, based upon a considerable number of cases, is to the effect that these lesions may be caused by the typhoid bacillus alone.

Orloff produced suppuration in dogs and rabbits by subcutaneous inoculation of pure culture, the pus showing this organism alone.

Of great interest are the experiments of Galgi, who fractured a long bone in one of the lower animals, and at some distance from that point injected subcutaneously a suspension of pure typhoid bacilli, with the production of suppuration at the point of fracture ; the pus showing in culture only the typhoid bacilli.

The presence of the typhoid bacillus in the spleen and bone marrow, particularly of the ribs, has been demonstrated by Quincke as late as the seventh week of the disease. In nine cases examined, eight showed the organism in the marrow of the ribs. In two cases the sternum was examined with positive results, and in seven out of eight cases large numbers were found in the spleen pulp. By analogy they should be as frequent in the bone-marrow as in the spleen.

Dr. Welch observed the persistence of the typhoid bacillus in the bile of a rabbit which had been inoculated four months previously and had recovered ; they were not found in the organs.

Observations upon the suppurative processes in human beings developed during or subsequent to an attack of typhoid fever, indicate that at one time the ordinary pyogenic organisms are alone present, at another, associated with the typhoid bacillus, and in still others the typhoid bacilli alone are met with, and even more rarely the typhoid bacilli are found together with other bacteria, *e.g.*, bacterium coli commune. It is not necessary that there shall be a common etiology in these processes any more than we look for a common cause of the suppurative process occurring under other conditions in the body ; on the other hand, there seems to be no good reason for excluding the typhoid bacillus from the group of possible pyogenic organisms. It may be looked upon as capable of causing various pathological conditions,—a specific typhoid fever attack, a local suppuration, and, finally, a general septicæmia.

Dr. Parsons reports six cases in detail. Four occurred in men and two in women. The ages ranged from twenty-one to forty-three years.

The character of the attack of typhoid fever does not appear to bear any relation to the occurrence of these lesions.

The period after recovery from typhoid fever at which the lesions appeared varied from one to sixteen months.

As to the bone involved, hardly any region of the body is exempt. The tibia seems to be the bone of choice. The humerus, radius, ulna, femur and fibula have at one time or another been involved, whereas the feet and hands were remarkably free. In the head the parietal and temporal bones have been affected, and in the thorax the ribs or their costal cartilages are a very common seat, probably next in frequency to the tibia.

It may be that some of the cases of "typhoid spine" described by Gibney should be in this class.

The effect of trauma, overstrain and muscular exertion, occurring soon after typhoid may be a determining influence in these bone lesions.

The *prognosis* is good as a rule, although Klemm reports a fatal case of lesion of the femur showing typhoid and colon bacilli associated. Complete excision of all diseased and suspected tissues appears to be the most satisfactory treatment. Mere incision is often followed by a persistent fistula. The persistence of the organism in the wound for such long periods of time, as some cases show, and the satisfactory results obtained after thorough and complete removal of the focus, suggest very strongly the line along which to work.

Linear Craniectomy.

DANA. "Craniotomy for idiocy."—*The American Journal of Medical Sciences*, January, 1896.

So much has been said against this method of attempting to relieve some of the symptoms of idiocy that an article favouring linear craniectomy is worth noting. Keen, of Philadelphia, has spoken favourably of the operation, so also has Horsley, Starr and Roswell Park.

That some amelioration of some of the worst features of these cases follows craniotomy, in some instances seems to be pretty well established, and *vice versa*, that very great improvement ever takes place, that is, that a change from the imbecile to the normal state ever occurs is about as well established.

Dr. Dana does not believe that the premature ossification of the cranial bones compresses the brain and prevents its development, yet in his opinion the microchephalic infants without fits or palsies furnish the best field for the operation.

Dr. Dana thinks that it is through its pedagogic influence that an improvement in these cases takes place and that the operation is allied in its effects to a severe piece of castigation.

In addition to this educational or pedagogic effect on idiots it is not impossible to suppose that by removing certain parts of the skull-cap we do allow for a freer expansion of the brain, that its circulatory supply may be improved and the tendency to growth and development of nerve centres receive something of a stimulus.

Little can be expected after a child has reached the age of four or five years, and the best chances for improvement will be obtained if the operation is done under the age of four.

Dr. Mies (*Ueber das Hirngewicht des Leranwachseden Menschen*)

has shown that the development of the brain is divided into three equal periods. The brain increases in weight by one-third during the first three months of life. It increases in weight another third during the period from the tenth month to about the middle of the third year. The last increment takes place during the period between two and a half years and adult life, and most of this last increment takes place before the child has reached the age of seven years. It is in the second third of the brain development, or the early part of the last third, that most improvement is recorded from craniotomy. At the same time there have been some striking successes, so far as symptoms are concerned, in children as old as nine or eleven years, but these are cases in which there has been epilepsy or paralysis or some other motor disturbance.

The mortality after linear craniotomy is now about 5 per cent. In Dr. Dana's personal experience one-half of the recovered cases have improved.

Pathology.

The Goncoccus and the Complications of Gonorrhœa.

Dauber und Borst. "Maligne Endocarditis im Anschluss an gonorrhœ."—*Deutsche Archiv. für Klinische Medicin*, 13th December, 1895, Band 56.

W. S. Thayer et G. Blumer. "Endocardite Ulcéreuse blennorrhagique. Septicæmie d'origine blennorrhagique."—*Archives de Médecine Expérimentale et D'Anat. Path.*, November 1st, 1895.

Where so very much clinical and medico-legal value attaches to the certainty with which we can diagnose a gonorrhœal infection, the importance of comprehending fully the typical characteristics of the gonococcus cannot be over-estimated. Time and again one is called upon to decide not only the nature of a purulent urethritis, but likewise to determine the causative factors in numerous complications which clinically are either classed as gonorrhœal, or else have so intimate a relation to the course of that malady that it seems more than probable that similar causes have induced both the primary lesion and the apparently secondary manifestations. In this category the various joint lesions, known clinically under the name of gonorrhœal arthritis, are facile princeps; the others, too numerous to give in detail, have in many cases quite as intimate a relationship to the gonorrhœal attack; such, for example, are many forms of cystitis, salpingitis, peritonitis, myo-, endo- and pericarditis, conjunctivitis, renal affections, some cerebral and spinal lesions, eruptions on the skin, etc. While, however, clinicians habitually denominate many of these as post-gonorrhœal, such a term is scarcely justifiable save in those cases where the gonococcus has been discovered in the affected regions or tissues, and until this is accomplished we cannot scientifically establish the etiological relationship between the germ of gonorrhœa and the so-called complications.

As a matter of fact, it is only within a very few years that investigators have satisfactorily proved the directly infectious nature of the gonococcus in these secondary results of a purulent urethritis, though such a statement applies unfortunately to but a very limited number of cases. Scientists have hitherto failed to discover the gonococcus in any of the nervous or cutaneous affections which have followed upon a gonorrhœa, and in many of the other more common complications a

germ has been found resembling the gonococcus in form and staining peculiarities, but no cultures were obtained, thus rendering the diagnosis unsatisfactory. The more complete proof of the presence of gonococci in joint affections and secondary abscesses was reserved for very recent times, such, for example, as the detection of the germ in an abscess of the finger by Lang and Paltauf, in an empyema by Mazza, in or near the joints by Neisser, Finger, Bloodgood and Flexner, Bardone-Uffreduzzi and others. By experimental inoculation on the human healthy urethra the last named investigator produced a purulent urethritis by means of a pure culture of the germ removed from the joints.

The relation of the gonococcus to cardiac complications is, however, of even greater interest both to the clinician and the bacteriologist. Ever since the middle of the present century the sequence of heart lesions upon attacks of gonorrhœa has been duly recognized ; these lesions may appear either directly upon the urethral infection within a very few days, or else some arthritic complication may intervene. This latter course is the more usual.

Sometimes, however, the gonorrhœa appears to be ushered in or rapidly followed by signs of a general infection, and sepsis with malignant endocarditis may ensue, as recorded in a fatal case observed by Martin, of Vevey.

Occasionally, too, cases are placed on record where an intimate relation appeared to exist between chorea and specific urethritis, with or without cardiac complications—hence the terms employed by Litten, viz., chorea postgonorrhœica ; endocarditis et chorea gonorrhœica—terms which, however suggestive, are utterly unaccompanied by a scientific basis for the nomenclature. While then abundant clinical records are not wanting to show that the most varied tissues and organs may become secondarily diseased as a result of gonorrhœa, the pathological investigations have been far from satisfying the necessary requirements to prove so intimate a connection between the gonococcus and other complications. Improved methods in bacteriology, however, have recently come to our aid in regard to this subject as well as to many others, and the association of some forms of arthritis and endocarditis, etc., with the germ of gonorrhœa has been established beyond a doubt. Only a few months ago Thayer and Blumer definitely proved that a malignant endocarditis and general septicæmia could be induced solely by gonococci—and the germs were found not only at the autopsy, but were likewise cultivated from the blood during life. Their case concerned a young married woman who died after an illness of three or four weeks with symptoms of

some general infection, viz., high fever and chills, rapid pulse and respirations, cyanosis, etc. There were splenic enlargement, presystolic and systolic mitral murmurs at the heart, and some albuminuria. Among the post-mortem conditions found were recent vegetations on the mitral and aortic valves, with loss of substance, infarcts in the spleen and lungs—some nephritis and general vascular engorgement. The gonococci were present in the blood and amid the valvular vegetations as demonstrated on cultures and cover glass preparations.

Much confusion over the diagnosis of gonorrhœal infection has necessarily arisen from several factors. Firstly, the supposed occasional presence of the gonococci normally in the genital tract. Secondly, the difficulty in obtaining some absolute and authoritative standard for the differentiation of the germ. Until very recently most observers following the lines laid down by Leyden, Deutschman and others regarded the following features as sufficient for a diagnosis of the gonococci :

1st. The presence of a biscuit (semmel) shaped diplococcus with its apposed surfaces flattened ; absence of any grape-like clusters.

2nd. The frequent presence of the cocci within the pus cells.

3rd. The staining reaction, viz., decolorization by Gram's method.

4th. Rapid decolorization by alcohol.

5th. Negative results when grown on ordinary media, such as agar, broth, gelatine and potato.

In view of recent work, however, these alone cannot be regarded as sufficient to establish an absolute diagnosis of the gonococcus, and a 6th postulate must be added, viz., the presence of a positive growth of minute white colonies surrounded by smaller daughter colonies when grown upon human blood serum added to ordinary agar, and this end may be accomplished in various ways. Thayer and Blumer in making their cultures from the circulating blood, sucked up by means of sterilized pipettes a large amount of fluid, adding to the agar about one-third of its quantity of blood, and the successful results amply justified the procedure. In obtaining the fluid from inflamed joints of gonorrhœal orgin, the method employed by H. S. Shaw, working under the direction of Dr. Adami, is commendable and satisfactory. In a case recorded by him, the synovial fluid was drawn off in sterilized glass pipettes and added to glycerine agar, and the colonies of gonococci, though remaining almost invisible as a growth, were readily seen in cover glass preparations made from the surface of the tube after several days had expired.

But this is not the only medium upon which the germs will grow.

Some bacteriologists recognize the fickleness of bacteria, and in endeavouring to provide a suitable medium of growth, seek for anything that savours of the curious and outlandish—and so in the case of gonococci, one authority, evidently an epicure, recommends filtered extract of fœtal pigs—upon which the germs are said to grow luxuriously. It is certainly difficult at times to account for predilections.

Whether or not we can ascribe any special characteristic features to the appearance of the growths on these various media does not seem to have been satisfactorily answered There are some, however, who insist emphatically on the importance of cultural peculiarities, and among such are to be reckoned Dauber and Borst who had occasion to observe thoroughly a malignant endocarditis and general septicæmia following upon gonorrhœa. On making a bacteriological examination of the blood and the spleen pulp, they discovered a diplococcus which was morphologically identical with the gonococcus, and which had the same staining reactions. Their germ further did not grow on ordinary culture media, though it afforded abundant colonies on human blood serum agar. These colonies, however, presented an appearance so entirely at variance with that of ordinary gonococci that the authors concluded they were dealing with an entirely different micro-organism. Regarding these observations as satisfactory, we would conclude that a malignant endocarditis may arise during the attack of gonorrhœa, and be induced by a germ so similar to the gonococcus that only certain very indefinite cultural peculiarities would differentiate them. Such a conclusion, too, would practically render valueless all previous observations of a similar kind where no bacteriological investigations had been made. On the other hand, it is to be regretted that the authors did not obtain gonococci from the local discharge in the same case, grow them on identical media, and by thus instituting tangible comparisons, prove that the gonococci and the germs found in the blood were two different species of micro-organisms. Where so little has been done on this subject, and where consequently our knowledge is as yet not so exact as with many other bacteria one should hesitate before postively asserting that gonococci, under slightly altered conditions, could not offer varied appearances, even on identically prepared media. It should, however, be added that not a few cases have been recorded where although pure growths of gonococci have been obtained in metastatic abscesses, that in other tissues and organs of the same case, ordinary pyogenic bacteria, etc., may be found—manifesting the presence of either a mixed or secondary infection—similar to those observed in diphtheria, typhoid fever, tuberculosis, etc.

From the work then that has hitherto been accomplished regarding the nature of complications of gonorrhœa, it has been established beyond doubt that gonococci may enter the blood stream and set up suppurative processes in different parts of the body, a malignant endocarditis, general sepsis and death. Further, that many complications are to be regarded either as secondary infection or as the result of the action of gonococci mixed with other bacteria. The proof that a toxine is developed and is capable of lighting up similar conditions, though not to be excluded, lacks at present a substantial foundation.

C. F. Martin.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

DECEMBER, 1895.

CANADIAN MEDICAL REVIEW.

A few points in the treatment of severe railroad injuries—R. W. Garrett, Kingston, p. 197.

THE CANADIAN MEDICAL RECORD.

Artificial lighting of public buildings and private houses, and its effects upon the human eye—Casey A. Wood, Chicago, p. 107.

Tumours of the orbit—J. W. Stirling, Montreal, p. 117.

THE MARITIME MEDICAL NEWS.

Report of a case of osteomalacia—Foster McFarlane, St. John, N. B., p. 249.

Cases in practice—G. E. Coultbard, p. 252.

Some proposed changes in the militia medical service—Wm. Tobin, Halifax, p. 255.

POPULAR SCIENCE MONTHLY.

The anatomy of speed skating—R. Tait McKenzie, Montreal, p. 180.

JANUARY, 1896.

THE CANADA LANCET.

Some limitations to curative work in state hospitals for the insane. A criticism of present methods, and a plea for a better system of treatment of the acute curable insane—Chas. B. Mayberry, Danville, Pa., p. 141.

Traumatic Septicæmia—J. C. Mitchell, Enniskillen, Ont., p. 148.

JOURNAL OF CUTANEOUS AND GENITO-URINARY DISEASES.

A remarkable case of purpuric eruption ending in gangrene, apparently caused by sodium salicylate—F. J. Shepherd, Montreal, p. 16.

L'UNION MÉDICALE DU CANADA.

Des causes et de la curabilité du cancer—Charles Verge, Quebec, p. 1.

Conseils pratiques donnés aux élèves en octobre dernier—A. T. Brosseau, Montreal, p. 12.

Anomalie de l'artère pharyngienne ascendante—A. A. Foucher, Montreal, p. 17.

A propos de quelques observations de cures radicales de hernies—O. F. Mercier, Montreal, p. 20.

REPORTS, ETC.

Report of the Board of Health of the Province of Quebec, 1895.

Medical Register of the College of Physicians and Surgeons of the Province of Quebec.

The Anatomy of Speed Skating---R. Tait McKenzie.

This very interesting article deals with that special form of athletics known as speed skating. Anthropometric charts and photographs of the most noted skaters are given, which show the special muscular development produced by this form of exercise. We find that these

men have strong backs and broad necks, due to their attitude while at work. The arms, which are kept idly folded on the back, are small and weak, as well as are the chest muscles. The abdominal muscles get some work from the constant swaying, but the characteristic features are the powerful, vigorous gluteal and extensor muscles, with sinewy hamstrings, but undersized calves. Thus speed skating is not a good exercise to develop a well-built, symmetrical man, but when indulged in, should be in conjunction with other forms of athletics which bring into action the muscles of the arm, calf, shoulders and chest.

A Remarkable Case of Purpuric Eruption Ending in Gangrene, Apparently Caused by Sodium Salicylate---F. J. Shepherd.

This case was exhibited before the American Dermatological Association and the Montreal Medico-Chirurgical Society, a report of which has appeared in the proceedings of the latter Society, published in the September number of this JOURNAL, p. 226.

Report of the Board of Health of the Province of Quebec, 1895.

This Report, which has just been issued, shows that a great and good work has been done by the Board of Health towards teaching and enforcing the principles of Preventive Medicine in this Province. The Secretary's report is not only a report of the progress of the work done, but is a valuable *resumé* of the requirements of hygiene, which should be in the hands, not only of every physician, but of every householder. It embraces discussions on legislation and regulations, including the Public Health Act, amended to date ; local boards of health ; contagious diseases ; Ste. Foye vaccine institution ; St. Lawrence quarantine ; water supply to towns, municipalities and dwellings ; sewers, drainage of dwelling houses and in rural municipalities; ventilation; teaching of hygiene in educational establishments; cemeteries and vital statistics. The first step of the Central Board, when formed, was to establish local boards of health. The progress was at first very slow, but the small-pox epidemic of 1891 was an excellent opportunity for completing organizations in each locality, and to-day out of 876 municipalities in the Province, 839 have their local boards as required by law.

The manner in which the Board has prepared for, and combatted infectious diseases, reflects the highest credit upon the management. The epidemic of smallpox, which broke out in 1891, in various localities scattered throughout the province, was so completely and so effectually checked, that there were but 151 cases, of which only 32 were fatal. Again, in 1892, when the Province was threatened with an invasion of cholera, the Grosse Isle Quarantine Station was found

to be in such an unsatisfactory condition that it could not afford proper protection. The Central Board obtained from the Provincial Government most extensive powers, by which they forbade the landing of emigrants in the Province, and the communication with the shore of ships coming from infected ports. The position taken by the board was declared *ultra vires* by the Federal authorities. Nevertheless the Board held firm and faced all objections raised by the large transport companies and enforced the regulations, in some instances by the aid of the police. The result of this action was that the Quarantine Station was re-modelled and transformed into a modern one.

That the people may learn the nature and cause of tuberculosis, a circular entitled " Consumption ; what is at present known of it and the means of preventing its contagion," has been published and distributed throughout the Province. Such advice is, indeed, timely, for we read that 4,960 deaths occurred from tuberculosis in the eighteen months ending January 1st, 1895.

The chapter on vital statistics is very full, but is by no means complete, owing to the great difficulty of obtaining the required data, the only source of the information being the church registers and cemetery reports. For the year 1894 the birth rate was 37.42 per 1,000 and the death rate 22.74. A fact of great importance established by these statistics, is the high death rate among children under five years, especially due to diarrhœal diseases. A table given of 35 counties, in which the population is almost exclusively French, shows that the death rate is very high, which is explained to a certain extent by the fact that the birth rate is much higher than among the other races. But in spite of this high death rate, the natural increase of the population of these counties was during the year 2.03 per cent., an increase which is greater than that of England, which is only 1.5 per cent.

The report is interesting and valuable reading, and should stir up physicians, clergymen and others to render every assistance in their power to the men who have done and are doing so much to improve the health of our people.

Medical Register of the College of Physicians and Surgeons of the Province of Quebec.

This is the first register that has appeared, and is regarded only as a first proof. The Registrar, Dr. Beausoleil, requests all those interested to make and send to him the necessary corrections without delay. It is altogether in French.

Kenneth Cameron.

Reviews and Notices of Books.

The Principles and Practice of Medicine. By William Osler, M.D. New York: D. Appleton & Co. Second edition. 1895.

The appearance of the second edition of this now classical text-book has called forth renewed expressions of the approval which followed its first publication. There is probably no medical work in the English language more widely and constantly consulted, and certainly none to which the physician and student may refer to with more confidence. It must indeed be gratifying to the author to know that his work has been adopted as the standard text-book in the principal medical schools of America and Great Britain, and it is no exaggeration to assume that its translation would meet with an equal appreciation in the medical centres of Europe.

The general plan and arrangement remain unchanged, and the volume still bears the personal *cachet* which characterizes all Dr. Osler's work—wide reading, judicious criticism and very large personal experience; the whole cemented together with a conciseness and directness that leave nothing to be desired.

The principal additions include the recent advances in our knowledge of the parasitology of malaria, of the treatment of diphtheria and tetanus, of the ætiology and treatment of the thyroid group of diseases and of Addison's disease, and of the fundamental structure of the nervous system. The last mentioned section has been enriched by the addition of numerous coloured diagrams. Among other important additions may be mentioned a chapter on affections of the mesentery, particularly cysts, the importance of which in the diagnosis of obscure abdominal tumours should not be overlooked. The same may be said of anomalies in form and position of the liver, which are briefly but clearly described. The chapters on septicæmia, pyæmia and appendicitis have been rewritten and extended. The latter is most satisfactory and voices the opinion of the most advanced physicians on the question of operation in this disease. The use of salines is unhesitatingly condemned, and moderation in the use of opiates advised. While adhering to the opinion that appendicitis is in the majority of cases a surgical affection requiring operative interference, the author rightly remarks in the section on diagnosis that "there is a well-marked appendicular hypochondriasis," and that "the question really had its ludicrous side," in view of the hasty and needless operations not infrequently performed under a mistaken diagnosis

Minor additions and corrections have been made throughout the work, and here and there matter has been omitted.

The article on typhoid fever has been considerably extended. The author does not approve of the so-called eliminative and antiseptic treatment, and gives excellent reasons for his opinion—the bacilli do not multiply in the intestinal contents; checking bacterial activity interferes with the normal processes in the bowel; and, he adds as a rider, "no one has been foolish enough yet to claim that so-called intestinal antiseptics can kill the pathogenic and spare the useful organisms."

The more recent theories on the ætiology of gout are stated, often in the words of their respective advocates, but no preference is expressed for any one of them.

To the morbid anatomy of broncho-pneumonia has been added a list of the micro-organisms most commonly found in association wtth the lesions.

There are few important changes in the section on diseases of the circulatory system. The "intermittent claudication" theory of angina pectoris is mentioned, and (as noted in the preface) associated with the name of Allan Burns, its original expounder. In the section on mitral stenosis the plausible explanation of Fenwick and Overend for the alteration of the first sound of the heart is noted.

The group of blood diseases has been rearranged and new investigations recorded.

In the section on diseases of the nervous system, besides the changes above mentioned, the chapters on the topical diagnosis of diseases of the spinal cord and of the brain have been with manifest advantage placed first in their respective sub-sections.

The revision of the work has been so thorough that there is little room for criticism.

The omission of the methods of clinical examination of the stomach is justified by the statement that "they more correctly belong to, and are more fully given in, manuals of diagnosis." The same reason, however, might be urged for the omission of the tests for sugar and albumen in the urine, and of the technique of the examination for tubercle bacilli in sputum. all of which are retained in the new edition. The method described for detecting tubercle bacilli is that of Weigert-Ehrlich, which has now been almost entirely superseded in clinical work, and even in pathological laboratories, by the Ziehl-Neelsen carbol-fuchsin solution, followed by decolourization and counterstaining with Gabbet's blue. The necessity of fixation of the material on the cover-glass by passing it through the flame is not mentioned. Recurrence in typhoid fever is not alluded to.

While writing on the treatment of small-pox, mention might have been made of Finsen's method of "red light," which appears to have some effect in preventing pitting, and has moreover an historical interest.

In view of the recent work of Kruse and Pasquale, the statement that Kartulis succeeded in cultivating amœbæ from dysenteric stools should be omitted.

The author retains Murchison's classification of jaundice; a short

notice of the recent work of Vaughan Harley, Stadelmann and Hunter would not have been out of place.

There are very few typographical errors; a few proper names are misspelled, *e. g.* Telamon for Talamon, Berkeley for Berkley, and Grissole for Grisolle.

A special feature of Dr. Osler's book is the large number of valuable references to medical literature. In most instances the name only of the author or investigator is given. It would be a great boon to the reader, and would certainly enhance the value of these references, were a complete bibliographical index appended to a future edition. H. A. L.

A Manual of Syphilis and the Venereal Diseases. By James Nevins Hyde, A.M., M.D., Professor of Skin and Venereal Diseases, Rush Medical College, Chicago, etc., and Frank H. Montgomery, M.D., Lecturer on Dermatology and Genito-Urinary Diseases, Rush Medical College, etc. With forty-four illustrations in the text and eight full-page plates in colours and tints. Philadelphia: W. B. Saunders, 425 Walnut street. 1895.

The aim of this manual is to present to the student and practitioner, in a compendious form, all the practical facts connected with the etiology, diagnosis and treatment of these diseases. The work will be of value because of its convenient form and as being thoroughly up to date in all the subjects treated. Here and there, however, sentences may be observed which are rather obscure in meaning and show signs of hasty construction. The illustrations are well selected and the letter-press is good.

K. C.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 13th, 1895.

A. D. Blackader, M.D., President, in the Chair.

Dr. R. de L. Harwood, of St. Lambert, was elected an ordinary member.

Discussion on Cancer.

Dr. J. G. Adami introduced the general pathology of the subject (See page 581.)

Dr. C. F. Martin spoke on the present state of the parasitic theory. (See page 594.)

Dr. F. J. Shepherd took up cancer of the face, mouth and throat. (See page 602.)

Dr. G. E. Armstrong, of the remainder of the digestive tract (See page 607.)

Dr. Jas. Bell, of the breast and genito-urinary organs. (See page 614.)

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

VOL. XXIV. FEBRUARY, 1896. No. 8.

McGILL UNIVERSITY DINNER.

The University dinner of the session of 1895-96 will be long remembered by those who were fortunate enough to take part in it as one of the most successful university functions of recent years. Upwards of 500 ladies and gentlemen were present in the great dining-room of the Windsor, and all apparently keenly enjoyed themselves. The Chancellor, the Hon Sir Donald A. Smith, presided. There were present their Excellencies the Earl and Countess of Aberdeen; Principal Peterson, of McGill University, and Mrs. Peterson; President Eliot, of Harvard University, and Mrs. Eliot; President Loudon, of the University of Toronto; Hon. Mr. Ross, the Minister of Education of Ontario; Principal Adams, of Bishop's College; many of the governors and members of corporation of McGill; the professors and lecturers of the various faculties, as well as a goodly array of students.

The speeches were numerous, able and appropriate to the occasion. His Excellency, the Chancellor, and Principal Peterson, as University officials, were all very happy in their remarks. The toast of "Our Queen," proposed by the Chancellor, was received with unbounded applause, as was also that of "The Governor-General." His Excellency in his response was as usual happy in his remarks. "Sister Universities," proposed by Principal Peterson, of McGill University, was responded to by President Eliot, of Harvard University, and President Loudon, of Toronto. Dr. Eliot was listened to with rapt attention by the great assembly. He dwelt on the opportunities afforded to rich and beneficient people by universities in enabling them for all time to perpetuate their names for good work. His remarks on the savagery of going to war to settle trifling disputes were loudly cheered.

The Hon. Mr. Ross, of Toronto, who is well known as a clear and forcible speaker, proposed the toast of "McGill University, her Prin-

cipal and Graduates." This was responded to by Principal Peterson and Dr. Craik, the Dean of the Medical Faculty. "The Undergraduates of McGill," proposed by D. MacMaster, D.C.L., was responded to by representatives of each of the five faculties, all of whom acquitted themselves with credit. Many of the grave seniors present were astonished at the great display of oratorical ability shown by the coming men.

The proceedings of the evening were enlivened by the University Glee Club singing a number of college songs.

THE NEW PHOTOGRAPHY.

The reports in the daily press concerning a wonderful advance in photography are certainly startling. Prof. Roentgen, of Würzburg, is the discoverer. Prof. Schuster gives in the *British Medical Journal* for January 18th the fullest explanation yet received. He has received some photographs from Prof. Roentgen which fully bear out all that is claimed by the discoverer, and there can be no doubt that a most wonderful and important discovery has been made.

It has long been known that highly-electrified particles which are projected from the negative pole of a vacuum tube produce a strong luminosity (phosphorescence) when they strike against the glass walls of a tube. Prof. Roentgen's discovery is that, in addition to this phosphorescence, another radiation is produced which is capable of penetrating through all bodies, though not to the same extent—aluminum is more transparent to this radiation than Iceland spar. The radiation passes in straight lines easily through paper, cardboard or wood, and produces photographic effects after having passed through two complete packs of cards. This new radiation passes in straight lines and cannot be refracted or reflected. Lenses will not focus the rays. The photographs are therefore said to be of the nature of shadows. Scientists are at work in many English and European centres testing this discovery, and observations of the greatest practical value are said to have been made. In medicine and surgery it opens the way to an exactness of diagnosis that may prove of the greatest usefulness.

Prof. Cox, of McGill University, has already photographed a hand in a manner that brings out clearly the outlines of the bones of which it is formed, and we hope in our next issue to be able to give our readers some photographs of medical and surgical conditions that will illustrate the scope and utility of this new discovery.

McGILL MEDICAL LIBRARY.

PERIODICALS REQUIRED TO COMPLETE SETS.

The Library Committee will be grateful for any of the following periodicals, which should be addressed to the Library, Medical Faculty, McGill University:

American Journal of Obstetrics, The—Vol. I., 7.

American Practitioner and News—Vols, XVII., Nos. Dec. to June; XVIII., Jan. to July.

Anatomie und Physiologie, Hyman und Schwalte—All before Bd. 13, 1886.

Annals of Surgery—Vols. V., Nos. 1, 2, 3, 4, 6; VI., 4, 5; VII., 1, 2; VIII., 1, 2, 3, 5, 6; IX., 1, 2, 4, 5, 6; X., 1, 3, 4, 5, 6; XII., 1, 2, 3, 4, 5; XIII., 1, 6; XIV., 1-6; XV., 1-6; XVI., 1-6.

Archiv für experimentelle Pathologie und Pharmakologie—All before 1881; Bds. XIII., Heft. 2; XVII., 5; XVIII., 1-6: XIX., 1, 6; XX., 1-6.

Archiv für Klinische Chirurgie—All before 1876 and after 1877 to 1884; Band XXXIII., Heft 3; XLV., 2, 3, 4.

Archiv für Mikroskopische Anatomie—All before 1886.

Archiv für Pathologische Anatomie und Physiologie und für Klinische Medicin, von R. Virchow—All before 1881; Bd. LXXXVII., Heft 2; LXXXIX., 2, 3; CII., 3; CVIII., 1.

Archives of Surgery—All before 1890.

Berliner Klinische Wochenschrift—All before 1880; Vol. LXXXVIII., Nos. 1-40.

Brain—Vol. IX. and from Vol. XI.

British Journal of Dermatology—All before 1891: Vol. VI., No. 5.

Canada Lancet, The—Vols. I., II.; XXIII., Jan., Feb., July; XXIV., Oct.; XXVI., Sept., Oct., Nov., Dec.; XXVII., Oct., Jan., March, June.

Canada Medical Record—Vols. II., Nos. 4 and index; XIII. to XVIII., want index; XIX., 6, 7; XX., 1, 2; XXI., 2 to 12; XXII., 1, 2, 3, 4, 5, 7, 8, 9, 10, 11.

Centralblatt für Bakteriologie und Parasitenkunde—Bd. XIV., No. 15: X., 9; XI., 25.

Centralblatt für Chirurgie—All before 1886.

Climatologist, The—Vols. I., Nos. 1 5; II., 5, and all after.

College of Physicians, Transactions of the—All before 1879.

Congress of American Physicians and Surgeons, Transactions of the—All before 1891.

Deutsches Archiv für klinische Medicin—Vol. LIV.

Deutsche medicinische Wochenschrift—All before 1886; Vols. 1891-93.

Dominion Medical Monthly—1893, No. 6; 1894, No. 6.

Edinburgh Medical Journal, The—Vol. XVI.; Dec., 1894; April, 1895; June, 1895.

Gazette Medicale de Montréal, La—Vol. I.

Gynæcological Journal—All after 1872.

Gynæcological Transactions—Vols. III. and all after 1881.

Hospitals—

Guy's Hospital Reports—Series III., Vols. 16, 25.

St. Bartholomew's Hospital Reports—Vols. 27, 28.

Royal London Ophthalmic Hospital Reports—Vols. V., Part III.; X., Part II.; XI., Part III.; XII., Part III.; XIII., Index.

Jahresbericht über die Fortschritte der Anatomie und Physiologie—Bd. 12.

Jahresbericht über die Leistungen und Fortschritte in der Gesammten Medicin—All before 1882; Band II., Abth. III.

Journal de l'Anatomie et de la Physiologie—All before 1886.

Journal of American Medical Association—Vols. II., Feb. 2-16, May 24; III., July 26, Sept. 20, Oct. 11-18-25, Nov. 1; IV., Jan. 10, 24, April 25; V., July 18, Sept. 12-19, Oct. 3, Nov. 28, Dec. 19; VIII., Jan. 1, March 19, April 9-16-23-30, May 7-21, June entire; IX., July 9-16-23, Aug. 6-13-20, Sept. 10, Oct. 8, Nov. entire, Dec. 3-

10, 17; XI., July 21, Sept. 8, Oct. 6, Nov. 24; XII., Jan. 12, Feb. 16-23, April 27, May 4, June 8; XIII., Aug. 10, 24, 31, Sept. 7, Oct. 26, Nov. 9, Dec. 7-14; XIV., Jan. entire, Feb. 1-22, March 8-15-22, April 19-26, May 24-31, June entire.

Journal of Cutaneous and Genito-Urinary Diseases—Vols. II., III.; IV., Nos. 1, 4 to 12; VI., 5, 8, 9; VII.

Journal of Cutaneous and Venereal Diseases—Vols. I., Nos. 3, 4, 8, 10, 11, 12; II., 1, 2; IV., 1, 2, 3, 10, 11.

Medical News, The—All before 1882.

Medical Record, The—All before 1875.

Montreal Medical Gazette—Vol. 1.

New York Medical Journal, The—All before 1883; 1885, Nos. 1, 2; 1886, 1, 2; 1887, 1, 2; 1888, 1, 2.

Ontario Medical Journal, The—Vols. I; II., Nos. 1, 6; III.

Ophthalmological Society of the United Kingdom, Transactions of the—Vols. I., II., III.

Pathological Society of London, Transactions of the—Vols. I., II., III., XX.

Pharmaceutical Journal and Transactions—Second series, Nos. 4, 5, and all after 1886.

Practitioner, The (London)—Vol. XXIX.

Revue de Chirurgie—All before 1886.

Revue de Médicine—Tomes III., No. 2: IV., 1; V., 2, 3.

Revue des Sciences Médicales—Tomes I., VI., X., XXVI.

Royal Academy of Medicine in Ireland, Transactions of the—Vols. I., II., and all after 1888.

Sanitarian, The—Vols. XXXI., Sept.; XXXII., March, June, July, Oct., Nov., Dec.

Schmidt's Jahrbücher—All before 1884.

Société de Biologie—Tomes 2, 3, 4, and all after Tome 5.

Therapeutic Gazette, The—All before 1881; Vols. XIV., Nos.5, 11, 12; XVII., 1, 2, 3, 4 8, 12; XVIII.

Union Médicale, L'—Vols. VII., Nos. 2, 8; VIII., 12.

Year-Book of Pharmacy—All before 1870 and after 1880.

Zietschrift für Klinische Medicin—Band IV., 3, 5, 6; VIII., 4; IX., 10, 11, 12; XIII., 1, 6; XIV., 4, 5, 6.

Dr. R. W. Garret has been appointed to the position of Professor of Midwifery and Diseases of Women, rendered vacant by the death of Dr. Fenwick.

Dr. W. G. Anglin, of Kingston, has been appointed Professor of Clinical Surgery in the Medical Faculty of Queen's University, and has also been given the position of Senior Surgeon to the Kingston General Hospital.

Obituary.

KENNETH N. FENWICK.

The sudden death of Dr. Kenneth N. Fenwick, of Kingston, removes from Kingston one of its most gifted and enterprising citizens and from our profession a man of great promise, a man who had already made a name for himself, not only in his native city, but throughout our Dominion. The circumstances leading to his death are such that should make physicians and surgeons think very seriously, and the lesson taught should be learned by all.

On the 23rd ult. Dr. Fenwick performed three abdominal operations, one of them being a complete hysterectomy. The following day he operated on a case of septic peritonitis, and in doing so became infected in the left thumb, through a fissure caused the day before by tightening a ligature. At 2 a.m. on the 26th ult., he had a severe chill, followed by a temperature of 102° F. However, he made light of this, as physicians are apt to do, and insisted upon going about his duties on the 26th and 27th. On the 28th his temperature was 104° F., pulse 140, and his left hand and arm swollen and painful. In spite of all that his *confrères* could do the arm became rapidly gangrenous and he died that evening. He died heroically and without a murmur.

Dr. Fenwick was born in 1852. He took his B.A. degree in Queen's in 1871 and graduated in medicine in 1875. After spending some time in England and on the Continent studying his profession he settled in Kingston. There he rapidly rose to a high position socially and professionally. He took a great interest in the Kingston General Hospital, was instrumental in pushing forward the Doran wing of that hospital, and gave the hospital an operating theatre, known as the Fenwick Operating Theatre, one of the most complete and best equipped operating theatres in Canada. His loss is deeply felt by the college, by the hospital and by the citizens of Kingston.

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Original Communications.

THE NEW PHOTOGRAPHY WITH REPORT OF A CASE IN WHICH A BULLET WAS PHOTOGRAPHED IN THE LEG.[1]

By J. COX, M.A.

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AND

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Everyone is familiar with the phenomena produced by discharging an induction coil through an ordinary Geissler tube. The vacuum of such a tube corresponds to a pressure of about one-thousandth of an atmosphere, or something less than one millimetre of mercury. On closer inspection the negative electrode, or Kathode, is seen to be covered with a velvety glow. Next comes a short dark space from which a faint violet cone spreads along the tube; the rest, and by far the larger part of the tube, is filled with a cloudy light whose colour depends on the gas within the tube. This light is generally arranged in regular patches or striæ and extends right up to the anode or positive pole.

Some twenty years ago Crookes showed to the British Association a number of tubes in which the exhaustion was carried to the millionth of an atmosphere. In these tubes the phenomena, as had been previously observed by Hittorf, are entirely different. As the vacuum increases the dark space spreads from the Kathode till it fills the whole tube, and the faint violet cone of rays from the Kathode excites brilliant fluorescence in the walls of the tube or any mineral or screen placed to receive them. Crookes exhibited experiments to

[1] Demonstrated before the Montreal Medico-Chirurgical Society, Feb. 7, 1896.

prove that these ' Kathode Rays' not only cause fluorescence, but (1) proceed in straight lines independently of the position of the anode, (2) violently heat the glass or the objects on which they impinge, (3) can set fans in rotation by their impact, (4) are deflected by a magnet, and (5) repel each other when two streams are sent in parallel directions.

Three views have been held with regard to these Kathode rays. Crookes maintained that they were streams of the remaining molecules of the rare gas, which having conveyed the positive charge to the Kathode left it with a rush which carried them far down the high vacuum before the rare collisions with other molecules brought them back to the usual state of confused motion in all directions. To the gaseous particles in this high vacuum he gave the name of "radiant matter," or matter in the fourth state of aggregation. Dr. Puluj, of Vienna, controverted Crookes' opinions, and made careful researches to prove that the rays were streams, not of gaseous molecules, but of particles actually torn from the Kathode itself.

Finally Hertz and Lenard came to the conclusion that they were not matter at all, either gaseous or belonging to the electrodes, but "Processés in the Æther," *i.e.*, vibrations or radiations of some kind analogous to ultra-violet, or infra-red light.

Three years ago when Prof. Hertz and Dr. Lenard showed me these rays, for the first time brought outside the glass wall of the tube, in Dr. Lenard's room at Bonn, they spoke of them as "molecules," but in the later part of his research Lenard proved that when once excited they could travel across the highest vacua, and for this and other reasons concluded they were phenomena of the Æther.[1] Dr. Lenard placed an aluminium window opposite the Kathode, and the rays passing through the metal caused fluorescing bodies to shine at distances of 6 centimetres in air, 4 in carbonic acid, and as much as 30 centimetres in hydrogen. Lenard found they affected a photographic plate, and even obtained some shadow photographs by their means.

It was not till last December that the next step was made known to the world by Dr. Roentgen in a paper communicated to the Academy of Wurzburg. It appears that while experimenting with a Crookes tube, which had been covered with black cardboard, in order to see if the eye could detect any rays emerging from the tube and capable of penetrating the opaque covering, Dr. Roentgen noticed that fluorescence was being excited in a screen painted with fluorescing material at some distance from the tube. Following up the hint, he obtained the effect up to distances of two metres, and by means of

[1] Lenard Weidemann's Annalen, 1894.

the shadows cast on the screen, soon determined the relative transparency of many substances to the "rays;" he concluded that they were not the Kathode rays themselves, but emanated from those parts of the glass that were caused to fluoresce; that they were probably incapable of refraction, or of *regular* reflection, though he found evidence that metals and glass could produce a scattered reflection, as a white wall does with ordinary light. The paper, which is a model of scientific caution, condensation and accuracy, details researches on many other points, such as the susceptibility of the rays to magnetic and statical electric influences, to polarization and to interference, and ends with the very interesting but guarded suggestion that we may here be at last in presence of those longitudinal vibrations of the æther which many physicists have held must accompany the transversal vibrations (*i.e.*, those at right angles to the ray) which constitute ordinary and polarized light, though hitherto they have not been detected.

Near the end of this admirable paper about twelve lines are devoted to some curious photographs or "silhouettes," obtained by making use of the fact that certain substances are much more transparent than others to the Roentgen rays.

It happens that metals and bones are much more opaque than ebonite, wood, paper, flesh and liquids. Hence, Dr. Roentgen says, he has obtained pictures of wires upon a bobbin, weights inside a box, and the bones inside his hand; and he modestly suggests that there will be useful applications in surgery. Lead being the metal usually fired into human bodies, is fortunately one of the most opaque substances and casts a very black shadow. Hence the possibility of locating bullets, or observing malformations or fractures in the bones.

It is this startling aspect of the discovery which has seized on the popular imagination, and led to all kinds of wild speculations on the part of those who failed to understand the first brief reports of Dr. Roentgen's results. When further research shall have increased the sensitiveness of this process as much as the modern dry plate exceeds in speed and brilliance the slow and misty daguerrotypes of the early photographers, there is no reason to despair of obtaining pictures, at least in outline, of those organs of the living body (and their contents) which are not hidden behind too great a thickness of bone. For the present we must be content to obtain, by a long exposure, a shadow of the bone or foreign substances divested of the surrounding flesh. The process simply consists in placing the object to be pictured between a Crookes tube and a sensitive plate enclosed in an ordinary plate holder, or, better, in black and orange paper. The operation is

carried on in ordinary daylight, since the plate is never exposed to it. The plate is developed and fixed in the usual way.

Nothing has yet been done, beyond what was accomplished by Dr. Roentgen himself, to elucidate the nature of the new rays, but his photographic experiments are beginning to be repeated. With the splendid McDonald collection of apparatus at hand, I found no difficulty in reproducing them at the first attempt, in which I was aided by Mr. Nevil Evans. Wasting no time over photographs of coins or other small objects, we have obtained the pictures of hands now exhibited.

What will mainly interest your Socicty is that within four days of our first attempt we have made two trials of the process as applied to surgery. On Wednesday Dr. Armstrong kindly brought me a case of injury to the hip; but I am sorry to say that after one hour's exposure we obtained not a trace upon the plate (22 in. x 18 in.). I am inclined to attribute this failure to the presence of lead in the black paint of the dark slide kindly loaned by Messrs. Notman, as lead even in a pigment has been found to obstruct the rays.

This morning (Feb. 7th) Dr. Kirkpatrick was good enough to give me the opportunity of trying to locate a bullet which had begun to cause trouble in the leg of a patient. As this is probably one of the earliest cases of the successful application of Roentgen's rays, especially in penetrating such a thickness of flesh, the negative, which clearly shows the flattened bullet lying between the tibia and fibula, will be seen with interest. The plate was a Stanley (sensitometer 50) and the exposure 45 minutes. It is clearly under exposed, and should have had at least an hour and a half. Near the top of the plate may be observed a copper wire tied round the leg, 3 centimeters above the entrance to the wound, from which to measure distances. (This wire does not show clearly in the print, although quite apparent in the negative.) The bullet was 6 centimetres below the wire, where indeed it had been suspected to lie. It may be said that in this case the new process converted a surmise into a certainty.

The tube which I have found by far superior to all others tried at present is a Puluj tube containing a brilliant fluorescing screen, and hence called the "Schirm-Lampe." It is No. 3080 in the catalogue, of Geissler, of Bonn, (price 15 marks).

This tube was excited direct from the secondary of the large Kukenkorff coil (10 inches spark) fed with 4 ampères at 8 volts on the primary.

The very perfect photograph of the hand showing sesamoid bones was taken with the same arrangements (except that the plate was wrapped in orange paper instead of being placed in a dark slide) by

Messrs. King and Pitcher, of the McDonald Physics Building, on the evening of February 7th. The exposure was, in this case 30 minutes.

A photograph of the arrangements in the Physics Lecture Theatre will make clear any omissions in my account.

I must leave Dr. Kirkpatrick to explain the medical aspects of the case.

The patient was shot in the leg on Christmas night last. He entered the Montreal General Hospital at once, when efforts were made to find the bullet.

These having proved ineffectual, the wound was cleansed and an antiseptic dressing applied. The wound healed in a few days and the patient left the hospital apparently well. However, February 1st he began to suffer pain, and a tender point developed on the inner side of the leg, just behind the tibia and 3 c.m. below the point of entrance of the bullet, which was on the back of the calf toward the outer side.

On February 7th the bullet was photographed and our surmise as to the location of the bullet was proved to be correct. He re-entered the hospital, and the next day I made an incision parallel to and just behind the tibia, and found the bullet lying against the outer edge of this bone. The bullet, which was flattened, weighed sixty-four grains, and measured twenty-three mm. in length by fifteen in breadth. A groove ran longitudinally along the surface of the bullet showing where it had rested against the edge of the tibia.

Although the plate was so much under exposed that it was with great difficulty that a print was obtained from it, still the location of the bullet was plainly indicated in the negative, and any doubt which I had regarding its situation was at once removed.

The patient recovered rapidly and left the hospital ten days after the operation.

AMPUTATION OF THE UPPER EXTREMITY, TOGETHER WITH THE SCAPULA AND OUTER TWO-THIRDS OF THE CLAVICLE.[1]

By Geo. E. Armstrong, M.D.

Assistant Professor of Clinical Surgery in McGill University; Surgeon to the Montreal General Hospital: Attending Surgeon to the Western Hospital.

Mad. X. Y., æt. 34, married, III-para., was admitted to the Montreal General Hospital on the 2nd of January, 1895, complaining of pain, swelling and partial fixation of the left shoulder joint. She states that for fifteen years she has suffered more or less from rheumatic pains about the left arm and hand. Two years ago, when pregnant at the eighth month, she fractured the left humerus about its middle during an eclamptic seizure. At this time, before the splints were removed, a small lump the size of a hickory-nut appeared in the anterior part of the axilla. The lump was hard, painless and disappeared in about a year, but the shoulder has been more or less stiff ever since.

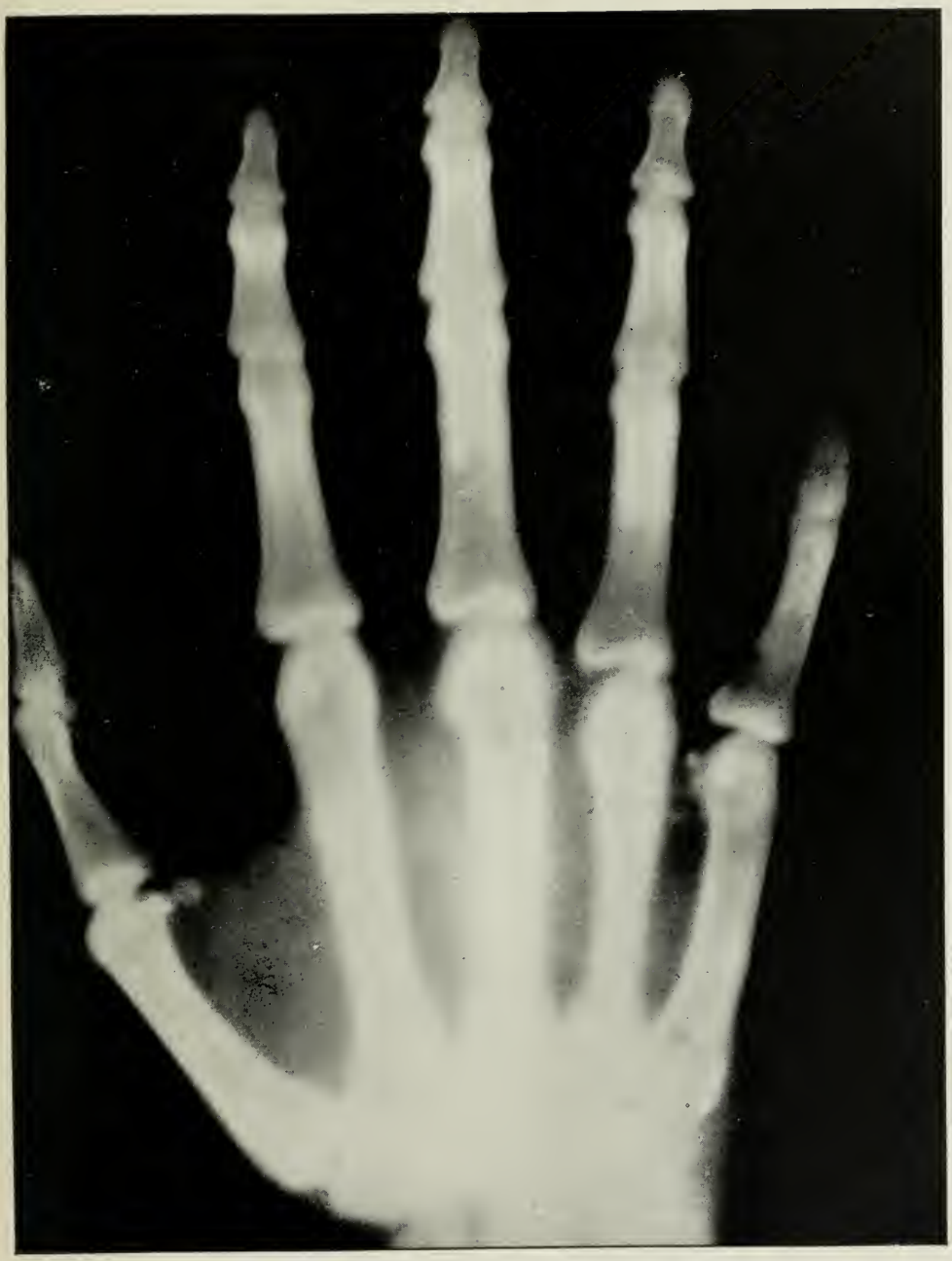
In August, 1894, she accidentally struck her shoulder against a door, and three days afterwards she was unable to move the left arm without the aid of the right hand. The shoulder became rapidly swollen and painful, especially behind. About two months ago a distinct nodular swelling appeared in front of the shoulder, which was stony hard at first, but afterwards became softer, and two weeks ago it was aspirated, a reddish-yellow gelatinous substance being obtained. These swellings have persisted, increased steadily in size and been very painful. There is considerable fixity at the shoulder joint. She says that she has lost flesh.

Her family history is negative. She is fairly well nourished. The whole shoulder is enlarged, the upper end of the humerus, neck of the scapula and acromion end of the clavicle being involved. The density varies, being in some parts semi-fluctuating, in others of bony hardness, and in one spot egg-shell crackling is very distinct. There is no tenderness. Fixation of the joint is complete Vascular, respiratory and urinary system normal.

The diagnosis was myeloid sarcoma.

On the 12th of January, 1895, the whole upper extremity was removed by the method described by Paul Berger in 1887. An incision was made over the clavicle, from the outer border of the

[1] Read before the Montreal Medico-Chirurgical Society, December 27, 1895.



PHOTOGRAPH OF LIVING HAND SHOWING BONES.

PHOTOGRAPH OF BULLET LYING BETWEEN TIBIA AND FIBULA.

AMPUTATION OF THE UPPER EXTREMITY, TOGETHER WITH THE SCAPULA AND OUTER TWO-THIRDS OF THE CLAVICLE.

sterno-mastoid muscle to the acromio-clavicular joint. This incision extended down to the bone, and the periosteum over the clavicle was incised longitudinally, and also a circular incision of the periosteum was made at each extremity of the longitudinal incision. The periosteum was then separated from the bone by a rugine and the clavicle divided by a saw at each end of the incision and the middle third removed. The subclavius muscle was then separated at the inner extremity and turned outward, thus exposing the subclavian artery and vein. Two strong catgut ligatures were passed around the artery and vein and tied, the artery being tied first, that as little blood as possible might be left in the arm. The vessels were then divided between the ligatures. An antero-inferior and postero-superior flap was then fashioned and the remaining soft parts divided. The operation performed in this manner is practically a bloodless operation, the only hæmorrhage being from the supra-scapular and posterior scapular arteries.

The brachial plexus was divided high up.

There was no shock following the operation, because there had been no hæmorrhage. The patient made an uninterrupted recovery and was discharged seventeen days afterwards.

She remains in perfect health up to the present. She is strong and active. There is remarkably little deformity noticeable when she is dressed, in fact if met on the street one would think that she had her arm under her cloak.

The dangers of the operation, hæmorrhage, entrance of air into the sub-clavian vein, and sepsis, can all be controlled by Berger's method.

A TRIP AMONGST THE GYNÆCOLOGISTS OF NEW YORK.

By C. L. Prevost, M.D., Ottawa.

(Continued.)

Quite close to the Central Park, at the corner of 106th street and 8th avenue, is situated the New York Cancer Hospital.

Rather young, this hospital, scarcely eleven years in existence, and still, similar to Corneille's hero, valour has not awaited the number of years. You may judge for yourselves by the following statistics out of the tenth annual report of this hospital. From January, 1894, to January, 1895, 751 patients were treated, 688 operations performed, including 142 abdominal sections, 21 abdominal and 16 vaginal hysterectomies. Mortality after all operations 4·15 per cent. Remember that in spite of its name this hospital is not exclusively destined to cancerous affections: it is an institution similar to all others and where all kinds of patients are admitted. A post-graduate course for nurses is attached to it and has been unusually successful.

The gynæcologists attached to the New York Cancer Hospital are Dr. Coe, one of the editors of the remarkable treatise of Clinical Gynæcology you all know, and Dr. Paul Outerbridge, whom it was my good fortune to see operate several times, and of whom I want to say a few words. Socially speaking, Outerbridge is a most charming man, obliging, affable and always ready to give any explanation required. As an operator he is neither fast nor slow, and therefore just right. Above all he is endowed with a truly angelic patience, which I envy with all my heart. I saw him at work in a case of intra-uterine tumour occurring in a woman of 38 years, on whom he operated before us. At the examination the point of the fibroid could be seen protruding through the os. The tumour appeared to be very large, and Dr. Outerbridge would very willingly have performed hysterectomy, but the patient, unmarried, retains still some hopes, quite legitimate after all, and she is anxious to keep her uterus, even be it only a second-hand one. Therefore the extraction will be attempted per vaginum by morcellement of the tumour in the uterus. In these cases of intra-uterine fibroids the authors advise that kind of operation if the operator is satisfied that he possesses a more than ordinary amount of patience and endurance, and surely they are right. Never have I seen such a laborious piece of work. During two full hours the operator was busy cutting up and removing pieces of the

fibroma, which, judging by the fragments piled up in the dish, must have weighed over seven or eight pounds. Sim's speculum placed on the posterior commissure and a retractor on the anterior wall, the operator seized with a large vulsellum the part of the tumour which protruded, and with the finger he would detach the uterine wall all around and then cut out a fragment with strong curved scissors, to begin again the same manœuvre. At the end of two hours the morcellement was not over, and in spite of the number and the size of the pieces which he had succeeded with such trouble in cutting and removing there was still some more to extirpate. The fibroid filled the whole uterine cavity and was inserted on the very bottom, as well as on the lateral walls. The cervix was not divided, but off and on Outerbridge would introduce the large metallic dilator called after him, and which is after all but a modification of Goodell's, and with that instrument he would divulse the cervix, which contracted again owing to the manipulation on the fundus of the uterus. During the whole operation an assistant kept pressing the uterus downwards through the abdominal wall, but adhesions prevented the organ from coming down the pelvis and rendered the operation still more difficult. Some symptoms of collapse decided the operator to leave the operation incomplete and made him regret not having pursued the course he generally adopts in similar cases, that is, do a cæsarian operation—open the abdomen, split the uterus, enucleate the tumour, and then suture the uterine walls.

I saw also in the same service a woman who had her womb removed four years ago for cancer of the cervix. She felt well ever since and began only lately to complain of some pains in the pelvis. She was examined and a small mass was felt on the right side of the vagina. Dr. Outerbridge made a vaginal incision and removed a tube adherent to the bowels and the seat of a neoplasm, which might be a return of the primitive malignant affection. After the operation a vaginal dressing was applied upon the same principle as the Mikulicz; a large piece of iodoform gauze was pushed up to the bottom of the vagina and filled with long bands of the same material.

At last, the very day I left New York, I had the good luck of seeing Outerbridge extirpate by the vagina a large fibromatous uterus in a state of complete prolapse. Nothing simpler than the manner in which this hysterectomy was performed. The whole operation hardly lasted twenty-five minutes. No retractors, nothing but a Sim's speculum on the posterior wall of the vagina. The Douglas's pouch was opened with scissors, no gauze was introduced; then incision of the cul-de-sac, always with the scissors, rapid separa-

tion of the bladder, and opening of the vesico-uterine fold of the peritoneum; fundus of the uterus brought down through the anterior rent; broad ligament grasped between the thumb and fingers of the left hand and pierced by Cleveland's passer, armed with a double catgut strand which was cut in the loops and laid above and below. Same manœuvre on the other side—section and extirpation of the uterus, no guaze applied, no clamps used, only a slight plugging of the vagina with iodoform gauze, and that is all.

Such is, gentlemen, in my humble opinion, the ideal method of doing vaginal hysterectomy. I am well aware that this operation does not always present such facility of execution as in the case just cited, where the prolapsed uterus protruding through a large vagina allowed the surgeon to operate, as it were, out of the vulva. Still, even in less favourable cases, I fail to see the great advantage of placing on the ligaments clamps, which, to begin with, are far from being so easy to apply as it has been said, and which expose the operator to many inconveniences, certainly not void of certain dangers, such as pain, pinching of the intestine, and even gangrene by pressure, either of the vulva or the bowels, in spite of all precautions taken to surround the clamps with gauze. Besides, the operation seems unfinished when the patient is put to bed with ten or twelve long forceps hanging out of her genitals. Why not use good and strong ligatures? With a little dexterity they are rapidly applied, and if the catgut is of good quality, aseptically prepared and snugly tied, the danger of hæmorrhage is not any greater than with the clamps.

I know that by this confession I repudiate a mode of operating which is universally adopted in France. In fact the clamps are exclusively used by Rein, Segond and Richelot in Paris, Doyen in Reims, and Jacobs in Brussels. The latter went through New York lately and has performed in several hospitals many vaginal extirpations with clamps. His immense experience (more than 400 cases) and his skill would permit, it is true, his completing the whole operation within a few minutes; however, in spite of the luminous trail left by his passage through the great American city, his method does not seem to have produced a very deep impression, since the majority of American gynæcologists continue to do their hysterectomies by the means of ligatures. There are some exceptions, I know. For instance, I saw at the Post-Graduate, Prof. Dudley extirpating through the vagina a fibromatous uterus without a single ligature. He opened the cul-de-sac with Paquelin's thermocautery, applied clamps on the uterine arteries, brought down the fundus of the uterus through the

posterior cul-de-sac and applied again two clamps, one on each side, upon the ovarian arteries, on the superior border of the broad ligaments, reversed below by the somersault of the uterus, and then removed the latter. But, I repeat it, even in this case it would have been just as easy to apply ligatures, and the operation would not have been prolonged in a very noticeable manner.

These facts, however, demonstrate the general tendency now-a-days to perform by the vagina operations which a few years ago were universally done by cœliotomy. The route is safer, the shock infinitely less, almost nil, the dangers and inconveniences of abdominal section avoided. The lesions of the appendages have become amenable to surgical interference per vaginam; purulent collections of the pelvis are daily opened by the incision of the cul-de-sac; the degenerated tubes or ovaries are removed by the same way, and even uterine fibroids, when they are not too voluminous, are extirpated through the vagina. We are going still further. When deep and incurable lesions have rendered the extirpation of appendages necessary, why not remove at the same time the uterus? In fact, what is the use of that organ to a woman deprived of tubes and ovaries? Hereafter totally useless, this uterus is often diseased, it is even in the majority of cases the starting point of the disorders which led to the removal of the appendages. Badly cured, if at all, it will sooner or later surely produce further annoyance and necessitate perhaps a new operation. Therefore, why not perform a complete operation at once? The mutilation is hardly more considerable, and experience has already taught us that the results are infinitely more satisfactory.

But let us return to New York. I long to acquaint you with the German Hospital, situated on the corner of Park avenue and 77th street. This hospital has been in operation for twenty-five years, and still one would think that it was built yesterday, so modern is the disposition of its wards and the working of its operating room. Although opened to all nationalities, we can easily see that it is above all a refuge designed to relieve Germanic sufferings. Everything is German—the inscriptions at the entrance of the wards, the charts, the operators, the assistants and the nurses, for there also exists a training school for nurses founded in 1894. Here again they try to carry out the principles of strict antisepsis, and certainly they succeed in doing so in a most admirable manner. The operating room is large and well lighted from above. The floor is of cement and on a slightly inclined plane to allow the easy flowing of fluids; therefore they take it easy. No recipient is used at the foot of the operating table to receive, during irrigation, the fluids which run freely on the floor. The nurses and assistants wear rubbers and the operator old-fashioned wooden

shoes, and after the operation water, blood, etc., is swept away. It may be expeditious, but it reminds one too much of the slaughter-house, and therefore I consider it an offence against æsthetics.

The dressings, instruments, ligatures are prepared with greatest care in immense steam sterilizers. Everyone minds his own business during an operation, which is done with great regularity and in the midst of deep silence. The operator has on each side basins of water, where he puts the instrument he has just used. The assistant at once cleans it and places it amongst the others to hand it back to the operator when wanted.

I assisted at operations performed by Dr. Krug, gynæcologist, and Willie Meyer, general surgeon. Willie Meyer! Here is a man near whom physicians and students must derive the greatest benefits. He teaches while operating, and by clear explanations makes us follow the course of his scalpel. He was doing that day Bassini's operation for the radical cure of hernia, extirpation of the astragalus for an old dislocation of that bone, and removal of hæmorrhoids. After laparotomy he closes the abdominal walls with a continuous catgut suture, taking care to interlock each stitch by passing the needle under the superior loop. To remove hæmorrhoids he uses the clamp and cautery, like almost every other surgeon in New York. But instead of snipping the top of the pile on the clamp before applying the cautery, he sears the whole of it down to the clamp without using any scissors. It takes longer, but the process is safer and guards more surely against further hæmorrhage. Only the prolonged contact of the fire rapidly raises the temperature of the clamp, and if the latter is not supplied with ivory plates we must not forget to lay between it and the skin a piece of moist gauze. In spite of this precaution in the case operated on before us, the clamp, entirely metallic, deeply burnt the left buttock of the patient; they had neglected to keep the gauze sufficiently moist during the operation. Dr. Meyer recommends to apply the clamp in the direction of the radiating folds of the anus. For instance, diagonally on each side below, the point of the clamp directed upwards towards the centre of the anus, and diagonally on each side above, the clamp pointing downwards. Four applications of the clamp are sufficient. Should there be any prolapsus of the rectum, some of the skin at the margin of the anus is included in the instrument with the pile. Iodoform powder is dusted on the parts and the bowels kept confined for three days.

Before I introduce you to Dr. Krug, and while we are dwelling on that interesting part of our economy, let us repair, if you please, to the Post-Graduate; we shall come back bye and bye to the German Hospital.

(To be continued.)

A CASE OF GENERAL INFECTION BY THE BACILLUS PYOCYANEUS.[1]

By Kenneth Cameron. B.A., M.D.,

Assistant Surgeon, Montreal General Hospital; Assistant Demonstrator in Clinical Surgery, McGill University.

H. P., a male child, was born at the Montreal Maternity Hospital on August 4th, 1895, was nursed by his mother for twelve days, and left by her at the Montreal Foundling and Infants' Nursery. The infant weighed eight pounds and was well nourished; the stools were in good condition, yellow and free from curds. He was then fed upon a mixture consisting of milk, lime water and water, each one-third, with sugar of milk 5i to 5v. After the first week the stools became loose and watery, and contained more or less curd. This indigestion never improved, though the proportions of the mixture were frequently changed, and he gradually lost weight. The temperature, taken every four hours, ranged from 97° to 100½°. In no way did the case differ from one of atrophy with indigestion until September 16th (the fifth week) when a blue papule, 6 mm. in diameter, was noticed on the abdomen a little to the left of the umbilicus. A purulent discharge from the right ear was observed the same day. Two other small spots appeared on the abdomen. Later on, the whole surface of the body became slightly cyanotic. The muscles of the legs were rigid, but not markedly so, nor were the thighs flexed on the abdomen. The child died on September 23rd, or six weeks after birth. The temperature during the last week ranged from 94° to 99°.

A note was sent with the body to the pathologist asking him to especially look for the bacillus pyocyaneus, as some, but not all, of the symptoms of infection by that organism had been present. In the absence of Dr. Martin, the requisite observations were made by Mr. E. W. Hammond, of the McGill Pathological Laboratory, under the immediate supervision of Dr. Adami. From his notes it will be seen that the bacillus was found generally distributed throughout the organs.

This case is the third of a series of cases of general infection by the bacillus pyocyaneus, observed among the infants in the Montreal Foundling and Infants' Nursery during the past sixteen months.

The first two cases have been very fully reported elsewhere[2] by the late Dr. E. P. Williams and myself, but may be briefly repeated here for the sake of comparison.

Case I.—A male child, nursed by his mother throughout his life.

[1] Read before the Montreal Medico-Chirurgical Society, November 29, 1895.

[2] *Journal of the American Health Association*, July, 1895.

He gained steadily in weight until the twenty-second week of age when he became restless and ill, and began to lose weight without assignable cause. Five weeks later diarrhœa set in, accompanied by abdominal pain and tenderness, and slight fever. After a week, a group of purple papules, 3 to 7 mm., appeared on the abdomen on each side, midway between the umbilicus and the flank; they then spread over the abdomen, chest and legs. The lower limbs became rigid, the legs were flexed on the thighs and thighs on the abdomen, and any attempt to straighten them out caused pain. Two days before death there was a profuse epistaxis and bleeding from papules between the toes, on the right thigh and on the back. A purulent discharge was also noticed from the left ear.

The autopsy was performed very shortly after death, and from the kidneys and spleen-pulp were obtained *pure* cultures of the bacillus pyocyaneus. Microscopical examination showed the capilliaries everywhere to be crowded with bacilli, which here and there formed emboli, and in some instances the micro-organisms had passed through the walls of the vessels infiltrating the surrounding tissue.

Case II.—A small poorly nourished female child was left in the Nursery, without her mother. She had a purulent discharge from both ears. There was a gain in weight for the first week, when she began to have diarrhœa and lose weight. She soon developed a general lividity of the whole body of a most pronounced type, and several pustules on the head, but no purpuric spots or cutaneous hæmorrhages were observed. Two days before death there was rigidity of the muscles. Cultures taken from the kidney, spleen and liver showed a *pure* growth of the bacillus pyocyaneus, and the microscopical appearances were identical with those seen in the first case.

Inoculations were made into rabbits from cultures taken from each child, and both the animals died within twenty-four hours with all the symptoms and lesions of acute pyocyaneus infection.

Very similar cases have been reported by Ehlers (*Hospitals Tidiende de Copenhague,* Mai, 1890,) and H. Neuman, (*Archiv. f. Kinderheilkunde,* Bd. XII., 1890). I am not, however, acquainted with original observations upon general infection with the bacillus pyocyaneus in children other than the cases by these two writers.

"The effects of the bacillus upon animals have been studied by several observers, notably Charrin, Ruffer and Babinsky. Charrin found that he could, by subcutaneous or intravenous injections of cultures, produce in rabbits a very characteristic disease, ending fatally, the symptoms and duration of the illness varying with the quantity and quality of the virus introduced. If a large dose, 0.50 to 1.00 cc., be injected into the vein of a rabbit's ear, the animal will

die in from twelve to twenty-four hours, the symptoms being loss of appetite, elevation of temperature, followed by a fall before death, diarrhœa, albuminuria, drowsiness increasing to coma, and sometimes convulsions. If, on the other hand, small repeated doses are given, a different train of symptoms appears. The disease becomes more chronic. Besides the albuminuria, diarrhœa, and fever, there occur rapid emaciation, cutaneous hæmorrhages and a peculiar form of spastic paralysis affecting usually the hind legs only ; the thighs are flexed upon the pelvis and the legs upon the thighs, which condition relaxes under chloroform ; handling the limbs gives the animal pain ; the muscles do not waste nor do they loose their electrical reaction. A few hours before death the paralysis becomes general. The post-mortem examination shows hæmorrhagic infarcts in all the organs and the specific organism may be easily demonstrated."

The close resemblance between the symptoms of this more or less chronic disease, produced experimentally in rabbits, and those observed in the infants, is very striking, and suggest that the cases reported are examples of the very rare condition—true pyocyanic disease.

The cardinal symptoms of this disease appear to be :

1. *Wasting.* This is usually very marked and rapid, and for it sometimes no cause can be assigned. In the case reported by Ehlers there was also mental depression.

2. *Diarrhœa.* Symptoms of gastric and enteric catarrh are always present and appear early. The stools are usually green, watery, and, in babies fed on milk, full of curds. Treatment seems to produce but little effect.

3. *Fever.* This is not high—the range being usually only two or three degrees, with a decided fall, often much below normal, before death.

4. *Albuminuria.* This is always present in rabbits, but no record can be found of this symptom in the human subject. This is probably due to the great difficulty of obtaining samples of the urine of very young babies. In the three cases here reported, repeated attempts were made to obtain a specimen but were unsuccessful.

5. *Rash.* In all the recorded cases there has been an eruption of bluish or purplish papules, chiefly on the abdomen, but also on the chest, limbs, head and mucous surfaces. The spots vary in size from 2 to 7 mm. in diameter, and there may be only a single one or a very great number. Sometimes they become pustular or bullous, the contents being of a bluish or brownish colour, and from them the bacillus can be cultivated. Sometimes a lividity of the whole body may be observed. This rash is the most characteristic symptom of the disease. Of the 68 infants that have died in the Nursery and have

been examined, but three have had such an eruption, and these are the three cases, here reported, of generalized infection.

6. *Muscular disorders.* These take the form of spastic paralysis, and occur late, after the development of the rash. The lower limbs seem to be the only parts affected. The thighs are flexed on the pelvis and the legs upon the thighs, and if straightened will return to the same position. Handling will make the child cry as if in pain. Before death there is general muscular relaxation.

BACTERIOLOGICAL NOTES UPON DR. KENNETH CAMERON'S THIRD CASE OF GENERAL INFECTION BY THE BACILLUS PYOCYANEUS.

By E. W. Hammond.

[From the Molson Pathological Laboratory, McGill University.]

I am indebted to Dr. Adami for the opportunity of publishing the following notes:

The post-mortem in this case was made by Dr. Adami and myself. At the autopsy the infant was found to be small and greatly emaciated, the skin in general had an earthy, sallow appearance, and over the abdomen there was a small hæmorrhagic eruption, with, in addition, two larger, rather faded purplish spots. The abdomen was greatly distended and tympanitic, and upon opening it the bowels had a dark congested appearance. There was no fluid in the abdominal cavity, but the bowels were moist. There were no signs of any subserous hæmorrhages, and neither in the intestines nor in the other abdominal organs, save the stomach, were there any conditions noted differing from those seen in marantic infants. The abdominal organs in general had a dark congested appearance, the spleen was soft and relatively large, the lungs were also congested. In the stomach there were submucous hæmorrhages similar to those observed by Dr. Williams in the cases mentioned above, and similar to those seen also in the rabbit upon inoculation with B. pyocyaneus. I may state that I have seen several cases of such submucous hæmorrhages, both in animals inoculated in the pathological laboratory here and in animals inoculated by Dr. Ruffer at St. Thomas's Hospital in London.

I made cultures in beef broth from the subcutaneous tissue beneath one of the large purplish spots in the abdominal wall, from the heart blood and from the kidney, liver and spleen. Of these the culture from the abdominal wall resulted in a pure growth of the B. pyocyaneus, that from the kidney became turbid, but showed no characteristic greenish colouration; the heart blood and the liver developed slowly the characteristics of pyocyaneus cultures, but upon microscopical examination presented cocci along with the bacillus; the spleen showed admixture with cocci and putrefactive bacteria to an even greater extent. It may be added that the weather was distinctly

warm. The autopsy was not performed until at least twelve hours after death. As above stated, putrefactive bacteria were present in the cultures from the softened spleen. Whether the cocci found in the heart blood represented a post-mortem growth or the existence of a mixed infection I am not competent to determine. Their existence renders it impossible for me to state absolutely that this is to be classed as a case of pure pyocyaneus infection. It is, however, to be noticed that from the most characteristic lesion present, namely, from the purplish hæmorrhagic patch in the skin of the abdomen, the B. pyocyaneus was alone obtained. It was to be noted further that the greenish colour appeared more slowly in those tubes in which there was a mixed growth than in the culture from the subcutaneous tissue in which the pyocyaneus only was present. It would seem, therefore, that the presence of other micro-organisms had a retarding effect on the growth and colour production of the bacillus. I noted also that the character of the pigment production and the intensity of the peculiar odour developed by the cultures changed with further growth outside the body. Thus the first broth cultures direct from the organs had a more purely green coloration and slight odour. After making plate cultures on agar the cultures from the separate colonies made in beef broth assumed the more typical blue-green appearance, that usually seen. In fact the colour of the first growths was very similar to that of the non-pathogenic bacillus fluorescens when grown in broth. The odour also became very strong. That I was dealing with the B. pyocyaneus was, however, shown by the appearance of the micro-organism under the microscope and by the results of inoculation. Upon November the 25th I inoculated a three-months-old rabbit intravenously with 1 c.c.m. of a broth culture twelve days old, made from a colony upon an agar plate from the original culture from the heart blood. The animal died in fourteen hours. At the autopsy, with death in so short a time partaking of an intoxication rather than an infection, it was not to expected that the animal would show many gross lesions. There were, however, hæmorrhages in the ear at some distance from the seat of inoculation, and hæmorrhages again in the mucous coat of the stomach, as also interstitial hæmorrhages in the lung. Sections of the spleen and liver showed the bacilli present. I should add that a microscopical examination of the organs of the child showed the characteristic small bacilli to be present in the spleen, liver and heart wall. From the heart, liver and spleen of the rabbit I obtained again pure cultures of the bacillus giving a rich pale blue colour.

A CASE OF PRIMARY CANCER OF THE GALL-BLADDER.

By C. F. Martin, B.A., M.D.,
Assistant Physician, Royal Victoria Hospital.

The points of interest in the subjoined report are as follows :

1. A very incipient primary cancer of the gall-bladder.
2. Cholelithiasis and perforation of gall-bladder.
3. Presence of gall-stones free in the abdominal cavity.
4. The absence of any special localizing symptoms.
6. The right hydronephrosis induced secondarily to the cancer of the gall-bladder.

Clinical Report.—(Notes by Dr. A. A. Robertson.) The patient, Mrs. T., aged about 65, who was admitted to the medical wards of the Royal Victoria Hospital, manifested great weakness. Her only remarks were that she was "slowly sinking away," and no further history could be obtained from her or her few friends. She was apparently uncared for and would seem to have been ill for some weeks previously.

On admission she showed much emaciation. Pulse 120 ; respiration, 28 ; temperature, 101°.

Physical examination revealed almost total consolidation of the right lung with a few crepitations and prolonged expiration at the base of the left.

Pressure over the abdomen caused pain in all regions, though most marked in the right iliac fossa ; there was no palpable tumour. Fever continued for forty-eight hours ; some diarrhœa ensued and weakness progressed till on the third day after admission death supervened.

The Autopsy (made 18 hours after death).

Anatomical diagnosis.—Acute lobar pneumonia ; cholelithiasis ; perforation of gall-bladder ; primary cancer of gall-bladder and localized peritonitis inducing right hydronephrosis ; secondary cancer of liver and dilatation of the bile ducts ; general arterial sclerosis ; subacute parenchymatous nephritis.

Body was that of an emaciated elderly woman presenting the usual post-mortem changes. On opening the abdominal cavity, which was dry, the *duodenum* was seen to be markedly distended and irregularly bent upon itself in the first and second portions and matted together with surrounding tissues, moderately recent adhesions being formed to gall-bladder, liver and abdominal wall. There was further

a slight sloughing of tissue in the immediate neighbourhood of the gall-bladder. The hepatic flexure of the colon was collapsed and pushed downwards. Four black, mulberry-like *gall-stones*, each 6 mm. in diameter, lay free in the abdominal cavity amid the sloughed tissue below the gall-bladder and seemed here loosely held amid the mass.

The *spleen* was small, soft and atrophied.

The *left kidney* showed evidence of subacute parenchymatous inflammation.

The *right kidney*, as it lay *in situ*, presented a thickening of its capsule, chiefly in the upper and anterior portion, with infiltration of the adipose and other neighbouring tissue. There was, however, even lower down, considerable inflammatory adhesion of the parts. The organ itself was fluctuating to the feel, evidently hydronephrotic, while the ureter itself was normal from pelvis to bladder opening. On removing the kidney, adhesions were found binding down the pelvis to the adjacent parts, evidently inducing a damming back of urine and thereby dilating the calices and causing great thinning of the kidney tissue. Average diameter of dilated pelvis was 10 cm., its walls much thickened. The fluid was slightly turbid and bile-stained; the mucosa injected, no stone could be detected.

The *bladder* presented some signs of slight chronic cystitis. The orifices of the ureters normal.

The *liver* and *gall-bladder* weighed together 1425 gms. The common bile duct, as well as the pancreatic and cystic ducts, were pervious; the latter greatly thickened. The *liver* itself small, very soft and rather paler than normal.

The *gall-bladder* was much diminished in size. The wall of greyish-white colour and very much thickened, especially near the attached margin. Towards its lower and outer portion was a perforation 1 cm. in diameter with smooth rounded edges, and through this evidently the gall-stones had escaped. The tissues about it showed localized sloughing where the organ impinged upon the duodenum. Where the gall-bladder was thickest there was much new tissue formed, connecting together the gall-bladder and the liver substance. It extended irregularly into the adjacent liver substance, being apparently continuous with and arising from the similar conditions of the wall of the gall-bladder itself. The average diameter of this irregular area was about 4 cm., while the liver tissues in the immediate vicinity presented a few smaller nodules of the same character. Elsewhere the liver contained about nine or ten greyish-white rounded nodules of comparatively small size, all firm on section and not penetrating deeply into the tissue of the organ. On section the liver was soft, many of its

bile ducts were greatly distended in both lobes, though apart from any evidence of cancer or tuberculosis.

The periportal glands were enlarged, soft and somewhat pigmented. The portal vein and vena cava were free.

Throughout the *alimentary canal*, beyond moderate congestion, there was no evidence of disease.

Thoracic cavity—In the *lungs* bilateral adhesive pleurisy, with double lobar pneumonia.

The *heart* was both dilated and hypertrophied, showing evidence of fatty degeneration and interstitial myocarditis. The coronary arteries were atheromatous.

Cultures from the consolidated lung gave the diplococcus lanceolatus. From the kidney and spleen were obtained the staphylococcus pyogenes aureus. Cultures from the liver pulp remain sterile.

Microscopic Examination — *Gall-bladder* — The walls showed chronic fibroid thickening, the mucosa in some parts much necrosis, in others deep irregular proliferation of epithelial cells of a distinctly glandular type. The adipose tissue external to the gall-bladder was likewise infiltrated. There was, in addition, some hæmorrhage, with thickening of the vessels in the neighbourhood. Sections of the cystic duct show involvement similar to that of the gall-bladder.

Examinations of the nodules in the liver showed the ordinary condition of metastatic glandular carcinoma.

There was no evidence of tuberculosis anywhere in the liver substance. The periportal glands were distinctly cancerous, glandular epithelial cells lying amid a moderately abundant fibrous stroma. Large masses of dark green or orange pigment of a granular character were distributed throughout the sections. There was elsewhere no evidence of carcinoma and the microscopic examination confirmed, in the other organs, the macroscopic appearances.

UPON TWO CASES OF PYOCYANIC WOUND INFECTION.

By H. S. Shaw, M.D., and D. P. Anderson, B.A., M.D.
Resident Surgeons of the Royal Victoria Hospital, Montreal.

The condition of blue pus in wounds is perhaps sufficiently uncommon now-a-days to make the following two cases deserving of being placed on record, the more so as, while the observations of Dr. Kenneth Cameron and the late Dr. E. P. Williams have shown that the bacillus pyocyaneus has been causing a general infectious disease in sundry infants in Montreal during the last two years, we have not during the same period encountered or heard of any examples of this more common wound infection in the general hospital practice of the city.

Case I.—W. M., æt. 15, entered Dr. Bell's wards upon September 26th, with symptoms of acute appendicitis of about four days' duration. He had suffered from a previous attack lasting for four months during the spring of the year. Dr. Bell operated upon the following day, and the operation revealed a densely infiltrated abdominal wall with dense adhesions about the cæcum and a pin-point perforation of the bowel. The appendix was not sought for, on account of this perforation and the consequent danger of infecting the general peritoneal cavity. For a week subsequent to operation the condition of the patient remained good; there was, however, a small amount of yellow fæcal discharge. The patient then began to complain of epigastric pain with some fever, and the amount of fæcal discharge was increased. Upon October 12th, two weeks after the operation, the patient was suffering severely from abdominal cramps, and the temperature varied between 99° and 101°. There was a profuse discharge of greenish fluid from the wound, while the dressings were also noticed to have assumed a bright bluish-green colour. The cultures made from the fluid showed the presence of the bacillus pyocyaneus. We noticed that the colour did not show itself well in the bandages until the second day, that is to say, that bandages left on just over the wound for twenty-four hours assumed only a yellowish tinge; twenty-four hours later, however, the dressings were very characteristically blue, and what is more, they gave off the same strong and peculiar odour (said to be that of trimethylamine) which is so noticeable in connection with pure growths of the bacillus upon various media. The subsequent course of this case has been marked by the persistence of

the fistula and the intermittent appearance of the colouring matter on the dressings.

Case II.—J. S., æt. 19. This patient entered the hospital under Dr. Bell in May last, with a very foul-smelling discharging wound in the right chest, which had been opened some weeks previously for the relief of empyema. In June the condition began to improve, a rib was resected for better drainage, but the pus continued to flow very freely, and on October 31st Esthlander's operation was undertaken, and cultures made from the pus on that occasion demonstrated the presence of bacillus pyocyaneus. The dressings since then have been noticeably of a bluish or greenish colour. From this case also one of us (A.) isolated also a non-pathogenic form which is not or has not been unfrequently isolated from water and other media, but concerning which we have been unable to come across any record as having been found in connection with wounds, or indeed with the surface of the body or mucous membrane. This is the *bacillus ramosus*. This is characterized by the peculiarity of the growth of stab cultures in gelatine media; from the central track of the needle there passed outwards and slightly upwards fine secondary lines of growth, most extensive towards the upper free surface of the gelatine, so that as one authority described it, the cultures have the appearance of little white fir trees that have been inverted. In both these cases there were several forms of micro-organisms present in the pus, and the B. pyocyaneus could not in any way be regarded as the primary cause of the suppuration; it is evident from the clinical history there was only secondary infection by this micro-organism.

It is of some little interest to inquire how this bacillus found entrance into the wound. In both cases there was always the possibility that it might have entered from the surface. The B. pyocyaneus has been isolated on the healthy skin, and especially would seem to be present not unfrequently in the region of the axilla.

In the second case it is difficult to explain any other mode of entrance or to put it in other words, such a mode of entrance affords the most satisfactory explanation. In our first case, where the bacillus appeared connected with the abdominal wound, there is another possibility which must not be left out of account, for the B. pyocyaneus has been isolated several times from the fæces; thus it is quite possible that in this case, in which there was a fæcal discharge and fæcal fistula of some considerable duration, the infection had originated from this discharge and not from any contamination from without.

PAROTITIS IN PELVIC DISEASE.

By W. S. Morrow, M.D.

Lecturer in Physiology—McGill University.

There is a variety of parotitis which receives little notice in our medical text-books, but which is—to say the least—rather interesting.

It occurs in connection with disturbed functions of the male and female generative organs, and also in pathological conditions of the urinary and digestive systems and abdominal parietes. Most text-books which mention it at all refer back to a paper by Dr. Stephen Paget, in the British Medical Journal, for March 1887, which, as far as I know, contains the most complete account of this affection to be found anywhere.

In the paper referred to, to which I acknowledge my indebtedness for a number of facts mentioned below, Dr. Paget has collected 101 cases of parotitis in connection with derangements, more or less serious, of the abdominal and pelvic organs ; and of these the generative organs were the seat of the original trouble in no less than 50. These cases are important, firstly, because their correct diagnosis saves our patients the inconvenience of isolation and the humiliation so inseparable from a verdict of mumps, and, secondly, because they open up the interesting question of connections between distant organs.

The following three cases observed by the writer were of pelvic origin. The first occurred in the course of pelvic peritonitis.

In March 1893, I was called to a case of pelvic peritonitis. It ran a moderately severe course, the temperature keeping up for about three weeks. A fortnight after the onset of the peritonitis one parotid gland became swollen, tense, and very tender. After a couple of days the inflammatory process extended beyond the capsule of the gland, and the face became puffy up to the middle of the forehead. A free incision into the gland was followed by somewhat alarming hæmorrhage, but no pus was seen. After this the inflammation rapidly subsided in both the gland and the pelvis, so that the patient was able to be up in a little over a week.

The second case was one of parotitis after suppression of the menses. In Sept. 1895, I was called to Miss C., aged about 25, and found her suffering with a painful swelling in the position of the right parotid. As far as known she had not been exposed to mumps, but a week before coming under observation, she went for an evening walk while menstruating and thought she had caught cold, as the flow stopped

and she was seized with pain in the pelvis. This was followed in a day or two by pain in the left parotid, and this again by pain and swelling in the gland on the right side. By the time I saw her, the one first affected was better, and under simple treatment the other became well in a few days and the pelvic pain disappeared.

The third case I have to relate was a very similar one. Miss E., went to midnight mass on Christmas Eve last while menstruating. She felt at the time that she was catching cold and the next day the flow stopped prematurely. The following day the left parotid became sore and swollen and that evening she came to see me. Her temperature was 100°, and there was a well marked tender swelling in the region of the left parotid gland. It was painted with iodine and she was given a dose of calomel, and thirty-six hours after this she felt quite well: the pain and swelling were gone and her menses had started again. She had not been exposed to mumps as far as known, and no one in the house with her had caught it. Moreover the whole duration of the parotitis was only 48 hours, so that it did not run the usual course of the specific disease.

The course has been found to vary very much in these cases and, according to Dr. Paget, the severity of the gland inflammation depends largely on the systemic condition at the time. Where it ends in suppuration it is because the powers of resistance have been diminished by some other disease, so that almost any inflammation would tend to run an unfavourable course. Considerable interest centres about the question of how parotitis is set up by morbid processes having their seat in the abdomen. A certain number of cases may be due to bacterial infection through the blood or secretory duct, such as occurs in many of the infectious and septic fevers and almost invariably goes on to suppuration. But there is a group of cases, often milder in type, and especially frequent in connection with pelvic disease, which do not admit of any such interpretation. For these we have to choose between the metabolic theory and the nervous. Against any metabolic theory we have the great number of tissues which may be the seat of the primary affection. Parotitis has been reported by Paget and others as accompanying or following pregnancy, delivery and abortion, menstruation which it sometimes replaces, pelvic cellulitis and hæmatocele, operations on the vagina and uterus, ovariotomy and oöphorectony, the use of the catheter and sound, blows on the testicle, operations and diseases of the bowel, gastritis and gastric ulcer, disease of the pancreas, and injuries and diseases of the abdominal wall.

This varied origin excludes almost absolutely any metabolic theory and favours a nervous one. And there is not wanting considerable

circumstantial evidence that the nervous system is the medium through which the effect is produced.

Some cases, like the last one reported in the present paper, seem to be rather transitory hyperæmias than true inflammations and suggest a vasomotor change as the primary one.

We know too that both the pelvic and the other abdominal organs have a powerful influence on the vasomotor centre, as seen in the flushes of menstrual irregularity and of dyspepsia.

Moreover there are other facts which seem to indicate a nervous connection through unknown paths between the parotid glands and the generative and digestive systems.

Among these facts may be mentioned the salivation of pregnancy, the dry mouth from which some women suffer during menstruation (Goodell) and the changes in salivary secretion observed in so many affections of the stomach and bowel.

The nervous theory is supported by those who have given most attention to the subject, and while more facts are being obtained, it may be taken as the most probable hypothesis.

Clinic.

CLINICAL LECTURE ON TWO CASES OF MULTIPLE ARTHRITIS DEFORMANS.

DELIVERED AT THE ROYAL VICTORIA HOSPITAL.

JAMES STEWART, M.D.

Professor of Clinical Medicine, McGill University; Physician to the Royal Victoria Hospital.

The first case which we will consider to-day is that of S. G., aged 26. He was admitted into the Royal Victoria Hospital on the 26th of September, complaining of enlarged joints, difficulty in walking and weakness.

His present trouble began three years ago with stiffness and pain in the shoulder joints. A few months afterwards the joints of the fingers became swollen, stiff and painful. He has frequently complained of a sensation of burning and tingling in the extremities.

About six months later the knees became involved, and the trouble here progressed so rapidly that in a few weeks he was only able to get about with the aid of two canes. About the same time he lost rapidly in flesh and colour. The elbows soon afterwards were found to be stiff and painful.

As to his past history, there is nothing to note except that he had diphtheria when eight years of age, followed by abscesses in the neck, one of which was opened and discharged. His occupation is that of a clerk. He has used stimulants in small amounts occasionally.

Present condition—You will notice that he is pale, the general state of nutrition being poor. There is beginning general arterial sclerosis. The pulse is regular, 72 in the minute and of low tension. When admitted a soft systolic murmur was heard at the pulmonary area, but has since disappeared.

The tongue is flabby and slightly coated, appetite good, bowels regular. The abdomen, liver and spleen normal. Mental state normal. There is wasting of the thenar eminences, interossei, flexors and extensors of the forearms, and to a less extent of the muscles of the upper arm, the motor power is diminished in the upper extremities, there is slight wasting of the supra and infra spinati on both sides, fibrillary twitching of the muscles is observed; sensibility to touch and pain normal, muscular reflexes slightly increased.

There is wasting of the adductors of the thighs and flexors of the leg, the feet have apparently escaped, but there is slight hyperexten-

sion of the lesser toes on both feet, sensibility is normal. Knee jerks are considerably exaggerated, ankle colonus present. Motor power somewhat diminished. There is considerable fibrillary twitching; electrical reactions are normal in the muscles of both the upper and lower extremities. The spine is normal. There is limitation of abduction at the shoulder joints, the elbow joints cannot be completely extended, and there is also limitation of all movements of the wrist and finger joints. The fingers are deflected to the ulnar side. There is a pseudo-crepitus in many of the joints. The knee joints are uniformly enlarged, and complete extension is impossible without great pain, the ankles and toes are not deformed. All the muscles are soft and flabby. The patient is able to walk when supported, but does so with the knee semi-flexed. Blood examination, red cells 4,120,000, hæmoglobin 68 per cent., no leucocytosis. The urine is normal.

Case II.—W. B., aged 46, admitted complaining of pain in the joints and inability to walk. Born in Canada. Had typhoid at 16 and gonorrhœa about nine years ago. Has used alcohol until about a year ago. Works as a last maker. Father alive, aged 86, subject to cough all his life. Mother alive and healthy. Has two brothers, one said to be phthisical; three sisters, none of whom are strong.

Present illness—First symptoms set in about twenty years ago. Patient was out driving and felt a severe pain in the left knee, had to be lifted out of the carriage, and was confined to bed for three months. The knees became red, swollen and hot, and the left hip appeared to be somewhat painful also. After this attack he was able to go about with the help of a stick. About two years later he had another attack and went to Caledonia Springs, but did not derive much benefit from them. About this time he noticed that his left knee was gradually becoming enlarged. There also gradually set in a stiffness in the fingers of the left hand, so that he had difficulty in closing them. He had a number of such attacks every few years, until about nine years ago, when he had a specially bad one, having pains in knees, feet and hips. After this attack he did not work for three years. Up to about a year ago he was able to walk with the aid of two sticks. A year and a half ago contraction in the fingers of the right hand set in and gradually increased. The right knee then began to enlarge and both knees became semi-flexed, so that he could not stand.

Patient is a man of medium height, dark complexion, somewhat anæmic. Is unable to walk, but can raise himself in bed and use his arms. Has been accustomed to use morphine for a year and a half,

taking as much as two grains a day on some occasions. Has very frequently to change his position in bed.

Pulse 66. Some arterial sclerosis. Cardiac dulness normal. First sound is a little weak at the apex, being short and sharp like the second sound. Aortic second is possibly a little accentuated.

There is marked wasting of certain muscular areas. In the right hand the interossei, thenar and hypothenar eminences are markedly atrophied and the muscles flabby. In the right forearm the muscles are also considerably atrophied. The fingers look thin on account of the muscular wasting. In the left hand and forearm the condition is similar, but to a much less extent. The fingers of the right hand are deflected greatly to the ulnar side. The metacarpo-phalangeal joints are flexed and the phalanges are extended. There is contraction of the muscles so that the distal joints cannot be flexed.

The second finger is also hyper-extended at the junction of the second phalanges. On the left hand the fingers are slightly deflected. There is inability to shut the fingers in the palm tightly. The second finger is hyper-extended at the junction of the second and third phalanges. Elbows and shoulders seem to be free.

In the feet the toes are extended at the metatarso-phalangeal joints, and flexed at the distal joints. On the dorsal surface of the first and second toes of both feet there can be seen and felt what appears to be small sharp spicules of bone, not movable with the skin.

Apparently no atrophy about the muscles of the feet. The muscles of the legs are extremely wasted in all groups. The thighs are also considerably wasted, more especially the quadriceps muscles and the adductors. There is some tenderness on pressure over inner side of the right humerus.

Patient has only perception of light. Marked arcus senilis. Cornea is steamy. Dr. Buller reports old plastic iritis with occluded pupil.

Marked enlargement of the ends of the tibia and femur forming the knee joints. Contour of joints is lost. Knees are kept semi-flexed and cannot be further extended. There is some enlargement of the metacarpo-phalangeal joints and slighter of the phalangeal joints. Movement of the hips is fairly free.

Tongue clean, appetite good, bowels constipated, liver and spleen normal.

Urine acid, sp. gr. 1013; no albumen, no sugar.

We have here to do with two well marked cases of general arthritis deformans, the first case being one of the idiopathic variety, the second in all probability being secondary to an attack of acute rheumatism. It is important to inquire into the causes which induce

this disease. First as to the influence of sex—it is much more common in females than males. Sir A. Garrod, in a series of 500 cases, found that there were no less than 411 females and only 89 males affected. The liability to the disease is greatest between 40 and 55, but no age is wholly exempt. Cases have been recorded in children under 10, and a local form of the disease is more frequent in men over 60 years of age. It is much more common in women in the two or three years succeeding the menopause. Direct heredity, no doubt, plays an important role in the causation of the disease, indirect heredity of nervous diseases also being an important factor. The following may be mentioned as the more important exciting causes of arthritis deformans: 1st, overwork ; 2nd, worry ; 3rd, acute, severe illness ; 4th, insufficient food and bad hygienic surroundings. Excessive work, especially when combined with worry, is the most prolific cause. It is not uncommon to meet with the disease after severe attacks of diphtheria, typhoid fever and influenza. In a general way it may be said that any disturbance that tends to lower the resisting power acts as an exciting cause of the disease. In this respect arthritis deformans differs markedly from gout. I will not detain you with a minute account of the morbid changes in the affected joints. It will be sufficient to say that the chief structures entering into their formation all suffer ; the cartilage, the synovial membrane and the bones. The cartilage covering the joints becomes soft and finally disappears, leaving the ends of the bones bare and in consequence of friction the latter become smooth and hard. Along the margins osteophytes form.

The nature of the disease is still a problem. Some contend that it is simply a form of chronic rheumatism, hence the name rheumatoid arthritis ; others consider it to be a mixture of gout and rheumatism, hence the name rheumatic gout. Some consider it to be owing to simple wear and tear of the joints, while again others think it simply a senile change. All these hypotheses completely fail to account for the morbid changes and symptoms. The causes leading to arthritis, the clinical features of the disease both articular and abarticular point very strongly to a nervous origin. The view most commonly held at the present time is that it is brought about by changes in the nervous mechanism which presides over the nutrition of the joints. Although this is yet a mere hypothesis, positive proof of such changes being wanting, there is much to be said in its favour. First we have very similar changes in certain diseases of the spinal cord which we know are attended by grave degenerative changes in this part of the central nervous system. In tabes dorsalis, a marked

feature in some cases is distrophic joint changes. Anatomically and clinically there is a resemblance between such changes and those met with in arthritis deformans, the changes in the synovial membrane and articular cartilages being very similar in both diseases. In tabetic arthropathy the onset and course is more acute, and there is but little tendency for osteophytes to form. Further, the destructive process is more marked than the reparative process as exemplified in the formation of bone. In the disease known as syringomyelia a somewhat similar destructive arthritis is met with as in tabes. We also meet with arthritis in cases of progressive muscular atrophy of spinal origin. (A photograph illustrating such changes was passed around.) The peculiar symmetry of the joint affections in multiple arthritis deformans is another reason for ranking it among nervous affections; such symmetry is, however, not universally present, but it is met with in a great majority of cases. Symmetry is the rule in arthritis deformans, while it is the exception in gout and rheumatism. In arthritis deformans the most peripherally situated joints are first affected, this being characteristic of nervous affections. Another important feature of arthritis deformans, is that it does not tend to implicate the visceral organs as does rheumatism and gout. The almost invariable presence of muscular atrophy and of sensory nerve disturbance, point to a neurotic origin. There have been as yet, however, no changes demonstrated in the central system—changes have been found in the peripheral nerves, but such are so frequent in all severe and exhausting diseases that they cannot be considered as a cause of arthritis deformans.

Clinical Features of Arthritis Deformans.—The disease may be ushered in with all the features of an acute rheumatism,—this was the case with our second patient; such a mode of onset is more frequent in old than in young people. The usual mode of onset is of a subacute or chronic character, swelling and pain being present; but the latter is seldom so acute as to compel the patient to rest. In the course of a few months, however, the joints become seriously crippled; in the very chronic cases the course is very slow, years elapsing before profound alterations take place in the joints.

Bone Lesions.—The trouble usually begins in the small peripheral joints; in the great majority of cases it is symmetrical. In the general form of the disease the hip-joints are least often affected, while in the senile form, the morbid changes are generally monoarticular and often limited to the hip-joint. There is hardly a joint in the body that may not be involved in general arthritis deformans, the temporo-maxillary joints, as well as those of the spine, being not infrequently affected.

Muscular atrophy is a striking feature of nearly all well marked cases of arthritis deformans, this symptom being well marked in both cases before you; it is not due to disuse of the muscle, neither can its origin be explained on the ground of reflex disturbance. There is every reason to suppose that it is either due to central or peripheral changes. It is accompanied by fibrillary twitchings and increase of the tendon reflexes, not only in the neighbourhood of the affected joints, but in distant muscles. Tremors resembling the tremor of paralysis agitans are met with in cases of arthritis deformans. The reaction of degeneration is also met with in advanced cases of atrophy. In all stages of this disease minor sensory disturbances, as numbness and tingling are complained of. Subcutaneous nodules in various parts of the body, especially on the back and flexor surfaces of the forearms, are now and then met with in arthritis deformans They are more frequently met with in young adults and resemble in every respect the subcutaneous nodules met with in acute and subacute rheumatism of childhood.

The general state of nutrition is lowered, especially when the disease comes on early in life, anæmia being a frequent accompaniment of the disease; although there is general pallor in both of our patients there is not much diminution in the number of red blood corpuscles or in the amount of hæmoglobin. Persistent rapid action of the heart is commonly present. It is often an early symptom, being present before any special joint changes are present, the pulse usually ranging between 80 and 100 a minute. It is independent of pyrexia, for as a rule there is no elevation of temperature except when there is an acute arthritic exacerbation. Pigment spots on the skin in the neighbourhood of the affected joints are considered by Kent Spender to be of diagnostic value. The skin is often glossy and atrophied; trophic changes in the nails and local sweatings are unusual manifestations. A negative symptom of importance in arthritis deformans is the absence of any organic changes in the visceral organs.

Prognosis—Arthritis deformans if uninfluenced by appropriate treatment tends to become worse and worse until the patient is left a helpless cripple. In the earliest stages of the disease there can be no question that the morbid process may be arrested by judicious treatment. If, however, the changes in the joints have gone on to the destruction of cartilage nothing can be done except to give relief to the distressing symptoms. Patients do not die directly from the disease, but from some intercurrent affection.

Diagnosis—It is important that an early diagnosis should be made. Frequently this is far from an easy matter. The following are the more important symptoms of the disease:

1. Pain and stiffness in the joints. These symptoms are especially suggestive if occurring in anæmic females, about the menopause, and who have been overworked and worried.

2. Numbness and tingling of the extremities.

3. Rapid pulse without pyrexia.

4. Pigmentation of the skin.

The above symptoms form a clinical grouping which may be taken as practically diagnostic of arthritis deformans. It is often impossible, at any rate during the acute stage, to diagnose correctly those cases beginning with sudden and severe arthritis. The resemblance to acute rheumatism is too close to admit of anything but a probable diagnosis. With ordinary care there is no difficulty in making a differential diagnosis between arthritis deformans and chronic articular gout.

Treatment—Until quite recently the treatment of arthritis deformans received no serious attention; it was too frequently placed in the list of chronic incurable maladies which might be relieved a little, but could neither be arrested nor cured. When any treatment was employed it was too frequently of a lowering character. At the present time there is not a general recognition of the danger attending such treatment. When the disease is in an early stage and the patient comparatively young much can be done to stay its progress or in favourable cases to entirely arrest it. The means to be used in order to obtain this end are:

1. The removal, if possible, of all existing causes, such as improper and insufficient food, overwork, worry, etc.

2. The employment of agents which help to increase the general state of nutrition. If the patient can afford to reside in a mild, dry climate in winter, he should do so. The food should be the best obtainable, and every possible means should be taken to promote the appetite and aid digestion. Iron, cod liver oil and arsenic are all agents of great value; they should be given for prolonged periods. Sir A. Garrod considers the iodide of iron especially valuable. Iron and arsenic may be given during the summer months and cod liver oil during the winter. It is not well to continue arsenic for too long a period in advanced cases, for, as pointed out by the late Palmer Howard, it tends to aggravate the arthritis. The thermal bath treatment of arthritis deformans is of undoubted value. At Bath a course of douching with massage has a deservedly high reputation. In Germany and France there are many resorts also where this mode of treatment is carried out with more or less success. At Banff, in our own country, every convenience is procurable for the proper treat-

ment of such cases. It is well, however, to make the patient understand before resorting to thermal baths that no measures should be employed that tend in any way to weaken his resisting powers. The patient during his stay at a bathing place should be under constant medical supervision.

The local treatment of the disease calls for the relief of the pain and spasms; the former may be combated by lotions of iodine and belladonna, the latter by fomentations; at the same time the patient should rest. Quiet should also be enforced during an acute exacerbation of the arthritis; salicylic compounds may be found of value also in such cases, and in those cases where the onset is that of the acute or subacute rheumatic type; at other periods of the disease salicylic acid should not be given, as its continuous employment tends to depress and therefore defeat the main object of treatment—increasing the resisting power.

Ephemerides, 1895.

By William Osler, M.D.

V. Acute Gout in the United States.

The comparative infrequency of acute gout in this country is a matter of every-day comment. In hospital statistics, and in bills of mortality the disease is mentioned but rarely; thus, it does not occur among the causes of death in the Report of the Medical Officer of Health of the City of Baltimore for 1894.

During the past year I asked all private patients most particularly about the occurrence of attacks of gout, and have examined in each instance the ears for tophi. There were only three cases in which gouty arthritis had occurred, and in only a single instance were tophi present about the joints or ears. During the session of 1894–95 I had in the wards four cases of gouty arthritis at one time, a unique event in my hospital experience.

Considering how careless Americans are about their diet, and the enormous amount of animal food which they consume *per capita*, and the widespread prevalence of the so-called acid dyspepsia, the absence of the severer manifestations of gout is very remarkable. The average American of the upper classes is a very much more temperate man than his trans-Atlantic cousin. The club man, too, who drinks to excess, prefers as a rule whiskey to the malted liquors or the stronger wines. I have sometimes thought that in the gout of this country the question of alcohol is of minor importance; the three patients referred to who had acute gouty arthritis were quite temperate. In considering the apparent infrequency of gout the failure to recognize the condition must be taken into account. I have known cases to be mistaken for rheumatism, even with well characterized chalk-stones on the knuckles and tophi on the ears.

The importance of asking very specially about the occurrence of gout is well illustrated by the following case:

A physician, aged 44, who had been for fifteen years a very hard-working man in one of the tenement districts of New York, consulted me May 21st, 1895, complaining of shortness of breath on exertion which had first developed in October, 1894. In his family and personal history there were apparently no etiological factors of any great importance. He had never had syphilis or rheumatism. He had

been an abstemious man, but had worked very hard. He presented all the features of advanced arterio-sclerosis, with hypertrophy of the heart, and the usual accompanying changes in the urine. There was no retinitis.

I had finished the examination, and, as he knew quite well the serious nature of the trouble, was discussing with him the possible cause of his kidney and arterial changes. I had forgotten for the moment to feel his ears, but on doing so found on one ear three small white nodules on the edge of the helix, towards the tip, most suggestive of commencing tophi. I then asked him particularly about attacks of arthritis, and he said that five years before he had had a furious attack of acute gout in the big toe, which had laid him up for a week. He had entirely forgotten about it, and did not regard it as of any momemt in his history.

The tophi and the history of an acute attack of gout leave no room for doubt as to the cause of the renal and arterial changes.

One sees here occasionally families in which gout is hereditary, and even quite young members may have severe attacks which lay the foundation of serious renal and arterial changes. During the past two years I saw at intervals with Dr. Hollyday, Miss X, aged about thirty-five, unmarried, in whose family on the father's side gout was very pronounced. When I first saw her she had all the features of advanced gouty kidney; the urine was of large amount and low specific gravity; the arteries were sclerotic; the pulse of high tension, and the left ventricle greatly hypertrophied. She had been a very abstemious woman, in easy circumstances, who had done a great deal of church and charity work. She had had three attacks of acute gout, the first when she was about twenty-seveny ears of age, which began in the big toe of the right foot. In the second attack, three years later, the tarsus was involved as well as the big toe. The third attack, last year, was in the same situation. She never had involvement of any other joints. The big toe joints on both sides were somewhat thickened. There were no deformities of the hands; no tophi on the ears. She had very extensive albuminuric retinitis. She died in uraemic coma in June, 1895.

While gouty kidney, either as a sequence of acute attacks, or as an event in chronic, irregular gout, is certainly less common in this country than in England or Germany, cases such as the two I have just given occur more frequently, I think, than has been suspected, or than we might gather from the writings of authors in this country.

VI. Calcification of the Auricle.

Tophi along the margin of the helix, or in fact anywhere on the auricle, are distinctive of gout. Has calcification of the cartilage of the ear the same significance?

Within six months three patients were seen with calcification of part of the auricle of one ear; without the presence of tophi, without arthritis, and in each instance without any history of acute gout.

The first case was a vigorous, muscular man aged 64, who had angina pectoris. He had been accustomed to take stimulants in moderation, chiefly French wines. The heart apex was outside the nipple line; the arteries were stiff; the pulse tension was a little increased. The upper half of the right pinna was unusually stiff and firm, and the cartilage quite hard and calcified. The skin was not in any way affected, and there were no tophi along the margin of the helix. The patient had never had gout.

The second case was a man aged 55, strong and vigorous, who came, for the purpose, as he expressed it, of a 'general overhauling.' He had been a very healthy man, and for years had had large and important interests to control. He had not had syphilis. There was no special increase of tension, and the superficial arteries were not sclerotic. There were no tophi and no enlargement of the joints. The cartilage of the upper third of the left ear was completely calcified.

The third case was a man aged 63, who complained of dyspepsia. He had never had symptoms of gout or of rheumatism. He had been a vigorous healthy man, accustomed to take a good deal of exercise. The pulse tension was not increased. The apex beat of the heart was a little outside the nipple line, and he had a soft but well marked diastolic murmur at the second right costal cartilage, which was propagated down the sternum. There was one small Heberden's node on the ring finger of the left hand. The cartilage in the upper third of the pinna of the left ear was calcified. In the right ear the cartilage of the tip of the helix was calcified, and there were several small nodular bodies along its upper edge, which did not, however, look like ordinary tophi.

Whether calcification of the cartilage of the auricle is due to the deposit of urate of soda I cannot say. I can find but scant references in the literature, and my attention has not been previously called to the subject.

RETROSPECT
OF
CURRENT LITERATURE.

Surgery.

Serum Treatment of Sarcoma and Carcinoma.

COLEY. "The treatment of inoperable malignant tumours with the toxin of erysipelas and bacillus prodigiosus."—*N. Y. Medical Record*, January 19 and May 18, 1895.

Since Koch attempted to cure tuberculosis by the subcutaneous injection of a culture of the tubercle bacilli, other members of our profession have been earnestly working, investigating, and testing the applicability of the principle to other diseases than tuberculosis, with more or less success. The serum treatment of diphtheria is an assured success and the serum treatment of cholera and anthrax is full of promise. The same, to a lesser degree so far, holds true in the serum treatment of syphilis.

Dr. Coley claims that by the hypodermic injection of the toxin of erysipelas and bacillus prodigiosus, cancerous and sarcomatous growths may be retarded in their growth, and in certain cases made to disappear altogether. A brief summary of his cases is as follows: Up to May 31, 1894, he had treated with mixed toxin twenty-five cases of inoperable sarcoma, eight of inoperable carcinoma, and three of sarcoma or carcinoma. In the cases of carcinoma he had marked improvement in a number of cases, but no cure. The cases were all very advanced recurrent tumours. There were six cases of carcinoma in which he considered that there was a reasonable hope of cure. Six months have elapsed since then, and none of the six cases have shown any recurrence. Since May 31, 1894, he has treated twenty-four cases of malignant tumours, all inoperable and mostly recurrent, with the mixed toxin. Of these cases thirteen were sarcoma and eleven carcinoma. In many of the cases of carcinoma, the injections had an undoubted retarding influence, and in some of the cases the improvement was extraordinary, but in no case did the tumour entirely disappear. In the sarcoma cases the effect was far more marked, and

although in a number of cases the disease was so far advanced that there could be no possible hope of recovery, still the powerful controlling influence of the toxins was demonstrated, and had the patient's general condition permitted a prolonged use of the injection, the result might have been otherwise.

In three of the thirteen cases the sarcomas have entirely disappeared, and although no great length of time has elapsed, the results in his older cases make it improbable that relapses will occur. Of his total of thirty-eight cases of inoperable sarcoma, therefore, nine cases promise to be permanently successful.

Emmerich and Scholl report several cases in which marked improvement followed the injection of erysipelas serum, but unfortunately the result in the hands of many surgeons has not been encouraging.

Czerny states that accidental erysipelas sometimes has no effect on cancer, or may even hasten its course, but reports two cases in which recurrent growths were accidentally inoculated with erysipelas, and in each case the cancer masses disappeared. The writer used a preparation of the toxin prepared by Dr. Coley in a case of recurrent sarcoma of the upper jaw without obtaining any improvement or retardation so far as could be observed. The case, however, was one of very rapid growth and far advanced before the treatment was begun.

Dr. Coley at first used cultures of the streptococcus of erysipelas and bacillus prodigiosus, rendered sterile by heat, so that there was no danger of lighting up a true erysipelas. He found that the combination was more effective than either alone. The bacillus prodigiosus seems to cause a softening and breaking down of the mass. The injections are followed by elevation of temperature, and in some cases by a condition of mild sepsis, apparently due to the breaking down and absorption of the growth.

Lately Dr. Coley uses a serum obtained from a horse immunized by the injection of a virulent culture of the steptococcus of erysipelas. Emmerich and Scholl obtained their serum from sheep, previously injected with erysipelas cocci. They think the serum derived from sheep is more effective than that obtained from any other animal, and seem to have a preference for certain races of sheep. The reaction following the injection of the serum is less than that following the use of the sterilized toxins.

Small doses produce no pain. After repeated injections there was a slight drawing pain, lasting only a few hours.

After the injection of small doses of an active serum, either at once or after a few hours, there appears a false erysipelas, an aseptic

erysipelas, consisting of more or less swelling of the skin with slight redness. The degree of redness is always less than that of true erysipelas. It does not spread, and disappears in twenty-four or forty-eight hours after the injections are discontinued.

It is difficult to harmonize the different results obtained by different observers. The results obtained by most surgeons have been far less promising than those claimed by Dr. Coley. However, this much can be said, that in inoperable and recurrent cases, the serum, as prepared by Dr. Coley, may be used without fear of doing any harm, if used at first in small and then gradually increasing doses, and with a chance of retarding the growth of the malignant mass and a possibility of causing its total disappearance.

Glenard's Disease.

Treves. "The treatment of Glenard's disease by abdominal section." —*British Medical Journal*, January 4, 1896.

The curious abdominal disorder known as abdominal ptosis, visceroptosis, or Glenard's disease, has only attracted attention during the last ten years. Glenard's monographs appeared in 1885 and 1886.

A very excellent account of the condition is given in the *Traité Pratique des Maladies du Système Nerveux* by Grasset and Rauzier. The disease in question depends, in the main, upon a relaxation of the abdominal wall and of the supporting ligaments of the viscera; as a result of which the more conspicuous organs are found to have dropped to a lower level in the abdomen. The affection is usually met with in women. No definite causes have been assigned to it although some attach an etiological importance to repeated pregnancies, to undue exertion, and to injuries.

It is stated that the right bend of the transverse colon is the first to descend, the stomach is then drawn down, with the result that the pyloric opening is compressed, and the passage of food hindered. In due course the rest of the transverse colon descends, the jejunoduodenal orifice is narrowed and a further obstruction is offered to the passage of alimentary matter. The whole mass of the small intestines becomes prolapsed, the lower part of the abdomen is prominent and possibly pendulous, while the upper part is flattened. The liver and kidney become loose and are described as "floating."

The results of this general ptosis are manifold and distressing. There are, in the first place, certain asthenic symptoms, general depression, and general ill-health. The patient becomes an invalid and is unfit for any exertion. She is only comfortable when recumbent. There is a sense of "weight" in the abdomen and of a sickening "dragging." There is pain in the back and a continued sense of

weariness. Gastric symptoms are prominent ; the most conspicuous are a sense of burning in the epigastric region, vomiting, pain, loss of appetite, distress after food, and more or less definite dyspepsia. The bowels are irregular ; there may be diarrhœa, but more usually there is constipation. The movements of the bowels are attended with pain ; aperients cause distress, and relief has to be sought by means of enemata. The stomach and intestines are very apt to be found dilated ; pressure upon the bladder may be complained of. The symptoms usually accredited to movable kidney may be present. Colic is common and may be now and then acute. In neurotic subjects these symptoms are exaggerated.

Another important symptom is that more or less relief is obtained by pressure upon the lower abdomen with the two hands or by the wearing of a supporting belt. Many patients are unable to move about until they have adjusted their supports or bands. The kidneys are found to be movable, the liver and stomach are prolapsed and return more or less to their normal position when the patient is recumbent.

Mr. Treves reports a case which throws some light upon this condition : A young lady, about 22 years old, had been ill for six years with distressing but somewhat indefinite abdominal troubles. There was a history of tuberculosis in the family. The patient was highly cultivated and intelligent, and had never exhibited any symptoms which could be considered "nervous," nor did she in any way conform to the conception of a neurotic subject.

Her troubles began six years ago with an acute abdominal disturbance, which had been ascribed to an ulcer of the stomach or to ulceration of the small intestines.

She was never well after the illness. The symptoms were in a general way in accord with those associated with Glenard's disease. Abdominal pain was almost constant. Vomiting was common, and the vomited matter was usually intensely acid. The patient became enfeebled. Her abdominal troubles were increased by movement and by the erect position ; indeed she was only comfortable when in the recumbent position. The right kidney was found to be floating and was fixed by suture by a well-known continental surgeon. The operation was performed three years ago, and was entirely successful. The kidney has ever since remained accurately in place, and the symptoms to which it gave rise have entirely vanished.

The patient was continuously under treatment. Every form of diet was tried, and a series of prescriptions was accumulated, which for number and variety could hardly be equalled. Many spas and health resorts in various parts of Europe were visited but with no

other than temporary or doubtful benefit. She had submitted for the prescribed time to the Weir-Mitchell treatment without deriving any benefit therefrom.

When Mr. Treves saw her she was wearing a very powerful belt, composed of a shield-shaped plate of metal, to which two steel levers were attached, and by means of which the plate was made to bear pressure upon the abdomen.

When examined in the recumbent position the area of hepatic dulness was normal, but when the examination was made in the erect position the liver was found to have descended about 2 inches. The stomach also, and the whole mass of intestines, appeared to fall downwards. The spleen shared in the general ptosis. The left kidney could not be felt.

As apparently every other available means of obtaining relief from this distressing condition had been resorted to, Mr. Treves advised an abdominal incision. He opened the abdomen in the median line below the xiphoid cartilage. The liver presented and could be dragged down to quite a remarkable degree. The stomach could not be brought forward to the external wound. Upon introducing his hand the great omentum was found rolled up into a round and rigid cord, and was fixed to a mass of stony hardness in the upper part of the right iliac region.

A second incision was made over this mass, which was found to be made up of a collection of tuberculous glands situated in the mesentery of the ileum. The glands were at once removed. Two of them were dry and caseous and presented calcareous foci ; the third gland was wholly calcareous, and was, indeed practically a stone. It was to these glands that the end of the omentum was adherent.

On returning to the median wound, it was found that the stomach could now be drawn up.

Sutures were then passed between the fibrous structures at the side of the xiphoid cartilage and the falciform and round ligament. The patient made an excellent recovery, was entirely relieved of her symptoms, and left England for South Africa five months after her operation.

As any examination of abdominal viscera is usually made when the patient is recumbent, it is difficult to say if this ptosis of the viscera is common.

In the same paper, Mr. Treve reports two very interesting cases of intestinal neuroses, in which there seemed to be a consciousness on the part of the patient of the intestinal peristalsis. In one case the patient thought that she had swallowed a small plate with teeth, and in the other the movements gave the impression that a snake was in the intestines. In each instance the relief after abdominal incision was complete. *G. E. Armstrong.*

Pharmacology and Therapeutics.

On the Treatment of Hæmorrhage.

WRIGHT, A. E., (Army Medical School, Netley). "On the treatment of the hæmorrhages and urticarias which are associated with deficient blood coagulability."—*The Lancet*, January 18, 1896.

ROGERS. "Some clinical aspects of the coagulability of the blood."—*Indian Lancet*, Dec. 16, 1894. *The Lancet*, Jan. 4, 1896.

In communications which have extended over the past four years, Dr. Wright has called attention to three important methods by which the coagulability of the blood can be increased, and hæmorrhage dependent upon this condition arrested.

These methods are: 1. The internal administration, and sometimes the local application of calcium salts.

2. The local administration of carbonic acid gas.

3. The local application of a solution of cell nucleo-albumins to bleeding surfaces.

Referring to the first method he records the results obtained in two hæmophiliac boys from the internal administration of calcium chloride.

Patient.	Date of 1st blood examination.	Time required for blood coagulation.	Amount administered of calcium chloride.	Date of 2nd blood examination.	Time required for blood coagulation.
Boy aged 9 yrs, case severe	April 13, 1894.	54 minutes[1]	Two 30 gr. doses.	April 14, 1894.	25 minutes.
			Two 30 gr. doses.	April 15, 1894.	13½ minutes
	Sept. 28, 1894.	14 minutes	Two 10 gr. doses.	Sept. 29, 1894.	6¾ minutes.
Boy aged 7 yrs, less severe... brother of case 1.	April 13, 1894.	7 minutes.	Two 30 gr. doses.	April 14, 1894.	4 minutes,
	Sept. 28, 1894.	9¼ minutes	One 10 gr. dose.	Sept. 29, 1894.	5¼ minutes.

[1] Normal blood coagulates under similar conditions in from two to four minutes.

This increase in coagulability produced by the lime salts is not, however, a permanent one. Their continued administration in large doses results in a diminution of coagulability below the original condition, but the augmentation is sufficiently prolonged to permit hæmorrhage to be arrested. In some cases the increase in the coagu-

lability produced by this means is insufficient. A blood coagulability of $6\frac{3}{4}$ minutes is no bar to the occurrence of very severe capillary hæmorrhage, and in such a case we must have recourse to other measures. In some instances the internal administration may be supplemented by the application of one of the less soluble calcium salts to the bleeding surface. Dr. Wright recommends finely powdered chalk mixed into a paste with a half per cent. solution of calcium chloride. He quotes a case also where severe hæmophiliac bleeding from the gums had been arrested by the application of calcium phosphate, after escharotic styptics had failed.

In this connection, he draws attention to Dr. Wickham Legg's statement that hæmophiliac children are not infrequently addicted to eating plaster, mortar and similar substances, and says he has convinced himself of its truth.

In other cases we may supplement the internal administration of calcium chloride by the local use of carbonic acid gas. This method Dr. Wright has employed on two occasions and secured comparatively prompt arrest of hæmophiliac hæmorrhage. He mentions, also, another case which occurred in the Netley Hospital, in which the blood coagulability had been impaired by prolonged tropical fever, and the patient had been brought into a precarious condition by continually recurring epistaxis. A stream of carbonic acid gas, obtained from an ordinary gasogene was conveyed into the nostril through a rubber tube passed well up. In this case, also, the administration was invariably followed by a prompt arrest of the hæmorrhage. In this method, an excess of carbonic acid should be avoided, as his experiments on animals would make it appear that its effect in augmenting the coagulability is only manifested in presence of a sufficiency of oxygen.

Dr. Wright suggests the inhalation of carbonic acid in the treatment of hæmoptysis. The stream of gas should be turned on very slowly at first so as to induce anæsthesia of the mucous membranes. As soon as this has been effected large quantities of the gas can be tolerated without discomfort. The patient should not, however, be in any degree asphyxiated, as this in itself would militate against the efficiency of the method.

By a somewhat extensive series of observations on the blood of hæmophiliac patients and of their female ascendants, Dr. Wright has convinced himself that it is characterized by a notable paucity of the polynuclear white blood corpuscles. In other words hæmophiliac blood is deficient in the cellular elements which contribute the nucleo-albuminous component in the formation of fibrin. An addition of the nucleo-albumins in such blood is therefore essential to the formation

of a sound clot. Dr. Wright proposes that, when practicable, a solution of cell nucleo-albumin should be employed locally, and in two cases of hæmorrhage from cuts in the hands of hæmophiliacs this local application led to the formation of an enormous mass of clot round the wound.

In closing he directs attention to the treatment of urticarias associated with defective coagulability of the blood. The urticarias resulting from the ingestion of ripe and acid fruit, of certain molluscs and crustaceans, and from the injection of anti-diphtheritic serum, are, he considers, all due to a diminished coagulability, and can be much modified, if not arrested, by the administration of calcium chloride. The urticarias sometimes occurring during the course of tuberculosis, should always be regarded as an important therapeutic indication, and a demand on the part of the system for the administration of the lime salts which, as Metchnikoff has shown, are employed by the system in the encapsulation of the intra cellular tubercle bacilli.

Dr. Rogers, who was a pupil of Dr. Wright's, states that he can reduce the coagulative time of his own blood from $5\frac{1}{4}$ min. to $3\frac{3}{4}$ min. by fifteen grain doses of the calcium chloride. As a result of his experiments with various drugs usually considered to have hæmostatic properties, he shows that several of these, such as gallic acid, ergotine and potassium iodide, have no effect in increasing coagulability. On the other hand, the administration of oxygen and of alcohol retard coagulation.

As regards the practical clinical application of the results of these researches, Dr. Rogers refers to the use of calcium chloride in hæmoptysis, in some cases of which he used it successfully in fifteen grain doses. Its use is also indicated in hæmatemesis and in vesical hæmorrhage. His experiments do not tend to support the asserted value of the present treatment of aneurism by iodide of potassium, except in so far as it reduces the force of the circulation. He thinks an increased coagulability in the blood can to a much greater extent be induced by the use of calcium chloride and the administration of carbonic acid.

Addison's Disease.

Osler, William. "On six cases of Addison's Disease with the report of a case greatly benefited by the use of the supra-renal extract."

Murrell, William. "A case of Addison's Disease treated unsuccessfully with supra-renal capsules."—*The Lancet*, February 1, 1896.

Speaking of the pathology of this disease, Dr. Osler states that recent studies render it very probable that the original view of

Addison is correct, namely, that the symptoms are produced by loss of function of the adrenals. On this view the disease is analogous in all respects to myxœdema. In both there are distinct histological changes in the tissues : in the one, an increase in mucin, in the other, an increase in pigment ; in both marked nervous phenomena ; mental dulness or a progressive dementia in myxœdema, a profound asthenia in Addison's disease. The analogy will be complete if it be found that in suitable cases the use of the supra-renal extract cures Addison's disease in the same remarkable way that the thyroid extract relieves myxœdema. Addison's disease is so rare that every opportunity should be seized to try this method of treatment. At the same time caution should be exercised, on the one hand to select only well characterized cases, and on the other hand to exclude cases in which the condition is a concomitant of wide spread tuberculosis.

After giving a *resumé* of the notes of five cases of the disease he details the history of a patient recently under treatment in the Johns Hopkins Hospital, for pulmonary tuberculosis, with well marked symptoms of Addison's disease. He entered the hospital May 3, 1895, and after a fortnight's rest, during which careful records were kept of his condition, the treatment with supra-renal extract was begun. Thirty-six pigs' supra-renals, obtained at the time of slaughtering, were cut up finely and thoroughly powdered with pestle and mortar ; to this mass about six ounces of pure glycerine were added, and the whole allowed to macerate for thirty-six hours in a refrigerator. The mixture was then filtered several times through meshed gauze. The filtrate, amounting to thirty-eight drachms, consisted of a reddish-brown syrupy liquid of a rather disagreeable odour. The patient began with half a drachm of the extract (equivalent to about half a capsule) three times a day. Eight days after beginning the use of the extract the following note was made : The patient looks brighter and says he feels better. The pulse, which had ranged from 120 to 140, is now 100. He has gained three pounds in weight. In a fortnight the amount of the extract administered was increased to one drachm three times a day. In the following week the patient gained five pounds and a half. The pulse had now fallen and its range for the week was between 84 and 104. The amount of sputum was diminished to one-fifth of what it was at the commencement of the treatment. The patient felt better, and looked brighter, and the physical signs showed an improvement in the lung.

He left the hospital four months after the commencement of the treatment. The change in his condition had been very remarkable. When admitted he was profoundly asthenic and emaciated, and he

could scarcely walk to his bed. His general appearance had improved wonderfully. He was bright and active, and said he felt vigorous. During his stay in the hospital, although it was during the heat of summer, he had gained in weight as much as nineteen pounds.

Four months later he was seen by Dr. Osler, who describes his condition as follows :

"The colour is good. To me his face looks a little less pigmented, but Dr. Thayer, who had the patient in charge during the summer, while he was in the ward, does not think that there is any material change in the face, but thinks the discolouration is less intense on the trunk. It is still of a very advanced grade, such as is only seen in the most typical cases of the disease. The small patches of pigmentation on the palate have disappeared. The local condition in the lung has cleared and there are now only a few râles to be heard occasionally on coughing. The change in the patient's general vigour is remarkable. He walks briskly, is active, energetic, in very good spirits, and says that he is as well as he ever was in his life."

Dr. Murrell does not view this method of treatment so hopefully. In a summary of all recorded cases given by Dr. Ringer, where similar treatment had been employed, out of nine five had shown improvement, but sufficient time had not elapsed to determine whether the benefit was permanent or not. In two cases no improvement followed; in one only a limited trial of the treatment had been given, and in another death supervened. Cases of Addison's disease often improve, although no treatment is given, so that deductions should not be drawn from a few cases. In Dr. Murrell's case death occurred after he had been in the hospital fifty-three days ; forty-two days of this period he had been under treatment by supra-renal extract. Tabloids were used at first, but on proving ineffective, fresh adrenals finely minced were given on bread and butter, one drachm three times a day. Severe vomiting followed their administration, there was rapid loss of weight and strength, the patient became gradually more listless and shortly afterwards died.

From the account given it would appear that the amount given per day of adrenal extract was much less in Dr. Murrell's case than in Dr. Osler's.

Therapeutic Items.

Caffeine in Diseases of the Respiratory Organs, *The Practitioner*, April, 1895.—According to Dr. Skerritt this drug besides possessing therapeutic value as a cardiac tonic and diuretic, appears also to have considerable virtue in respiratory affections, especially in those where the element of spasm is prominent. It is in asthma

especially that Dr. Skerritt has obtained good results, and although failures do occur, they are fewer with caffeine than perhaps,with any other remedy. Its action as a heart tonic as well as a relaxer of bronchial spasm make it particularly useful, and it gains additional value by its influence as a general stimulant to the nerve centres in cerebrum, cord and medulla. The drug is to be given in five-grain doses repeated every four hours until relief is obtained.

The Treatment of Rhus Poisoning. *N. Y. Medical Journal*, January 11, 1896.—Prof. Penhallow, writing to the *Garden and Forest*, remarks that the poisonous principle is more or less common to the entire family. After suffering several times himself he could always tell at once whenever he came into an atmosphere charged with the poison by experiencing a well-defined acid taste in the mouth and a slight somewhat acute pain directly between the eyes. These invariably proved premonitory symptoms of what was about to follow. Mr. Penhallow recommends free application of the following solution: Sodium hyposulphite, half an ounce; glycerin, three ounces; carbolic acid, sixty drops; water, ten ounces.

Mr. Lodeman and Mr. George Beringer both state that the symptoms are apt to reappear at about the same time of the year for several consecutive years. The latter writer in speaking of the treatment recommends washing the face and hands with a solution of hydrogen dioxide as a preventive measure, and as a topical application the following solution: Sodium sulphite, one drachm; glycerin, half an ounce; camphor water, up to four fluid ounces.

Strychnine and Chloride of Gold in the Treatment of Phthisis.—*University Medical Magazine*, December, 1895. Dr. Pepper records the case of a woman with a strong taint of hereditary tuberculosis, who at the age of 21 rapidly developed phthisis of an acute type. The sputum, amounting to eight fluid ounces daily, contained numerous tubercle bacilli, and there were signs of consolidation at the right apex and left base. She was placed on a diet of egg albumen, which was forced, so that she was soon taking daily the albumen of two dozen eggs. The medicinal treatment consisted of $\frac{1}{100}$ gr. of strychnine nitrate with $\frac{1}{1000}$ gr. atropine sulphate hypodermically every two hours, and $\frac{1}{60}$ gr. strychnine nitrate with $\frac{1}{12}$ gr. double chloride of gold and sodium, and $\frac{1}{2}$ gr. of a vegetable digestive every two hours by the mouth. She was given cod iver oil inunctions and general massage with passive movements once daily. She suffered at first from incipient strychnine poisoning, but after a while came to tolerate the drug, which was pushed to the border line of its toxic action. She rapidly gained weight and in two

months almost all the symptoms had disappeared. She remained in good health for two years, when all the symptoms of the previous illness followed an attack of pneumonia. She was placed on the same treatment as before, and in a month was sent to the mountains well.

Pepper calls particular attention to the sudden onset, quite like acute miliary tuberculosis, the immense number of bacilli found in the sputum, the rapid cure, with acute reappearance after two years as the result of a pneumonic attack, the speedy disappearance of bacilli and consolidation in this recrudescence, the absence from the treatment of all cough medication and antiseptics, and the large doses of strychnine nitrate, and double chloride of gold and sodium, with which the system was kept saturated. *A. D. Blackader.*

Pathology.

On the Identity of Variola and Vaccinia.

Juhel-Renoy and Dupuy. "Recherches expérimentales sur l'identité de la vaccine et de la variole."—*Arch. de méd. exp, et d'anat. pathol.*, 1894, p. 425.

Layet. *Bull. de l'Acad. de Médecine*, December 3, 1895. (Abstract *British Medical Journal*, January 11, 1896.)

Hime. "Successful transformation of small-pox into cow-pox."—*British Medical Journal*, II., 1892, p. 116.

Copeman. "Variola and vaccinia in the lower animals."—*Journal of Pathology*, Vol. II., 1894, p. 407.

Copeman. "Pathology of vaccinia and variola."—*British Medical Journal*, Vol. I., 1896, p. 7.

"They," wrote Dr. Edward Jenner, "who are not in the habit of conducting experiments, may not be aware of the coincidence of circumstances necessary for their being managed so as to prove perfectly decisive; nor how often men engaged in professional pursuits are liable to interruptions which disappoint them almost at the instant of their being accomplished."

This passage appears in the first edition of the famous "Inquiry into the Causes and Effects of the Variolæ Vaccinæ," and immediately follows a statement of Jenner's belief that the source of cow-pox is a peculiar morbid matter arising in the horse. Jenner owned that he had not been able to confirm this belief by actual experiment conducted immediately under his own eye. He had sought opportunities to this end, but they had failed him; the necessary "coincidence of circumstances" could not be attained; he was therefore compelled to register his belief unsupported by direct proof. He was led by circumstantial rather than by direct evidence to regard both small-pox and cow-pox as originating from a common source. In the absence of full investigation he confounded two morbid conditions of the horse's heel, namely, grease and horse-pox. Failing to determine any but a spontaneous or atmospheric origin for the grease (horse-pox) he regarded this as the primitive disease, which transmitted by milkers to the cow became cow-pox, transmitted to man, under some peculiar and unknown train of circumstances, developed into small-pox.

Now-a-days we attach little importance to this theory as a whole, weakened as it has been by Jenner's mistake. What is all-important to us is this assumption that small-pox and vaccinia (and horse-pox) are modifications of one and the same disease, for upon the correctness of that assumption must depend our conception of the nature and import of vaccination. If the assumption be correct then vaccination affords an example of what Pasteur and numerous other bacteriologists have repeatedly proved, namely, that the mild disease produced by the experimental inoculation of an attenuated virus is capable of protecting the organism against the inroads of the more intense virus. Vaccination is brought into line with the ancient experience that a mild attack of sundry infectious diseases is capable of protecting the organism against later infection by the same. If the assumption be incorrect then, appreciating, as we must, the benefits of vaccination, we are impelled to see in it an example of one disease (and its causative microorganism) protecting the system against the ravages of another. The matter then becomes more complicated and less easily grasped. Nevertheless, a protection of this nature is not outside the bounds of possibility, and bacteriological study has afforded cognate examples. Woodhead, for instance, years ago obtained from the soil a perfectly harmless bacillus, which when inoculated into the small animals of the laboratory protected them against anthrax, and several of the slightly different microbes of hæmorrhagic septicæmia acting specifically upon sundry of the lower animals, when inoculated into other animals render them refractory to invasion by their own peculiar and specific microbes. Only within the last two years Klein has pointed out that such widely different organisms as the typhus bacillus, the micrococcus prodigiosus and the cholera spirillum, with their products, exert a temporary protective effect against each other.

While this is so, Jenner's belief in the causal relationship between small-pox and cow-pox, is that which has appealed to our profession, and investigator after investigator has endeavoured to establish the connection as something more than a mere assumption. Time after time it has been announced that small-pox communicated to cattle has resulted in the development of veritable vaccinia pustules. And yet that 'coincidence of circumstances necessary for (experiments) being managed so as to prove perfectly decisive,' has very, very rarely been gained. Ninety-eight years have passed since Jenner published his pamphlet with the lament which every pathological investigator must in essence ofttimes have repeated, and at the end of this time it cannot be announced that the medical world in general, which for those ninety-eight years has busied itself with vaccination, is assured as to the exact nature of the virus it employs.

Half a century ago there was a greater assurance than there is to-day: the experiments of Thiele in Kasan, of Ceely of Aylesbury, and of Badcock the Brighton chemist, appeared conclusive in favour of the identity of the two diseases. All these observers succeeded in inoculating cattle with small-pox and in obtaining from the variolated cattle a lymph which induced a typical vaccinal eruption in man. But when, in 1863, a French commission at Lyons, with Chauveau at its head investigated the subject results were reached strongly opposed to the earlier observations. The variolous and the vaccinal eruptions in cattle were declared to be distinct and to remain distinct when inoculated through a series of cattle.

It may truly be said that the influence of Chauveau has dominated our appreciation of the subject until the present time, and despite strong arguments and examples brought forward in other countries, Chauveau and the French pathologists following him, adhere to the opinion that the conditions are distinct.

Thus Juhel-Renoy and Dupuy (1894) still urge that where variolation of cattle is successful the papules have a specific appearance distinct from those of vaccinia, and that after two or three generations the disease dies out; and they make the further, somewhat bold declaration that the age of the animals, age and virulence of the variolous lymph and region of inoculation are without effect in influencing the transmission of the small-pox virus. Only last year Layet, as the result of inoculating heifers with the blood and lymph of small-pox patients gained, it is true, an eruption in each case, which, while vesicular and pustular, he held to be distinct from vaccinia. The lymph from this eruption reproduced the disease on other heifers Notwithstanding this, and the further fact that subsequent vaccination was either abortive or wholly without result, he holds that we have to deal with distinct diseases. With regard to these two cases it may be stated in connection with the former that in the discussion which followed the reading of the paper at the Société Médicale des Hôpitaux, Chantemesse, a most capable observer, objected that the conclusions were based upon insufficient material[1] and in connection with the latter, that the series of inoculations of heifers was not carried far enough to establish duality. In short, it appears that now, just as thirty-two years ago, the upholders of the dual theory are satisfied with incomplete results. At first employing aged cattle and obtaining no satisfactory eruptions they either denied that small-pox could be conveyed to ruminants, or inoculating children directly from the abortive papules upon the first animal of the series they induced

[1] In the published paper the authors are evidently uncertain as to the value of their results and write very cautiously concerning the duality of the two conditions,

small-pox on them. Next, when it was found that occasional well marked eruptions resulted, not taking sufficient care to collect the lymph at the right period, they concluded that the disease could not be conveyed through cattle in series, and now when other observers have pointed out that calves can under suitable conditions be easily inoculated with small-pox, they fall back upon the fact which all workers appear prepared to admit, namely, that the eruption produced during the first removes of variola from man to beast is somewhat aberrant in appearance and time of appearance and in effects, and upon this, without carrying the investigation further they are ready to state that variola and vaccinia are essentially distinct.

But if the opponents of the belief in the unity of the two conditions cannot be regarded as having proved their contention, the same has to be acknowledged in connection with almost every individual attempt to prove the unity. The number of these attempts is larger than is generally thought. From Gassner in 1801,[1] through sundry Egyptian physicians in or before 1828, we pass to Sonderland of Barmen (1830), Thiele of Kasan (1836), Ceely (1839), Badcock (1840), and in more recent times, since the Lyons commission in 1863–5, to Voigt of Hamburg (1881), Fischer of Carlsruhe (1886–90), King of Madras (1889), Eternod and Haccius of Geneva (1890–91), Simpson in India, Hime, Klein and Copeman in England (1892), and all these claim to have obtained positive and satisfactory results. Yet when we examine into their statements, with few and recent exceptions, there is the same want of the "perfectly decisive." What we know of Gassner's work is, for example, of the vaguest; of the Egyptian physicians we have only the second-hand report of Dr. McMichael to the Royal College of Physicians that several of them had succeeded in variolating cattle, and so had gained a good lymph for inoculation. Sonderland declared that he had gained vaccinia by covering cows with the bed-clothing of small-pox patients, but numerous observers failed to confirm his results. Ceely gave a full and admirable account of his inoculations of cows with small-pox lymph, but like not a few of his successors, as for instance Voigt, he vitiated his results (for present purposes) by simultaneous or almost simultaneous inoculation with ordinary vaccine lymph elsewhere on the cow's body. Badcock, although he succeeded in variolating 37 out of 200 cows experimented upon, and though he is said to have vaccinated personally no fewer than 20,000 individuals with his "variolo-vaccine," has given the most meagre description of his *modus operandi*, and has passed over his technique without statement of the precautions taken, and consequently his evidence is robbed of much of its value. And even among

[1] 1801 according to Crookshank; 1807 according to Ceely.

the most recent workers there is a lack of due precaution. Thus Dr. Hime, of Bradford, employed clear limpid variolous lymph from a small-pox patient of the fourth day of the eruption and inoculated it into the shaved and disinfected abdominal wall of a ten-weeks-old bull calf. For the incisions he employed a sterilised knife. The calf was only placed in its stall when the infected scarifications and incisions were dry, and then it was tied up with a short halter so that it could not lick itself. As a result there was slight constitutional disturbance and the development (as is most usual in these cases) of a not very perfect eruption, and on the eighth day Dr. Hime collected minute quantities of lymph from the pocks. In a second calf similarly treated every one of the 29 insertions of the lymph from calf I took, and on the fourth day there were beautiful and typical pocks. A third calf inoculated from the second also developed perfectly typical vaccinia. Children inoculated from the second and third calves of this series exhibited well devloped vaccine pocks and were found later to be refractory to ordinary vaccine lymph. The example appears thus at first reading to be an absolutely decisive proof that variola passed through the calf assumes the characters of vaccinia. Only, unfortunately, reading between the lines it is found that Dr. Hime is the director of a calf-lymph supply establishment, and evidently the experiments had been undertaken in the place where the usual calf lymph inoculations were performed, the calves placed in the stalls usually dedicated to vaccine calves, and fed and groomed by the ordinary attendant or attendants. And while I myself have no doubt that Dr. Hime succeeded in the transmutation, I cannot regard the investigation as flawless; there was the chance of contamination with ordinary vaccine.

This weakness in Hime's case vitiates the observations of Eternod and Haccius at the Swiss Vaccine Institute at Geneva, who on eight separate occasions gained useful lymph by variolisation of cattle and successive passage through calves. At the conclusion of the series the only difference recognisable between this and ordinary lymph was its slightly greater activity.

Nevertheless similar results have been obtained by Copeman under conditions in which there was no possibility of contamination. He inoculated a calf at the Brown Institute in London, with variolous lymph from a girl suffering from discrete small-pox. The instruments and table were sterilised: the environment of the animal were such that there was no likelihood of vaccinia being communicated to it. Yet a shotty vesiculo-papular eruption appeared both along the scarifications and as in Hime's case in other regions, while by the

third remove the effects on the calf were undistinguishable from those of ordinary vaccine lymph. Copeman proved that the variolated animals were refractory to subsequent 'vaccination,' but unfortunately he never employed his 'variolo-vaccine' lymph to inoculate human beings. Here again then, is a step in the complete proof omitted. There are only two cases on record which appear to be thoroughly satisfactory and conclusive, namely, one of Fischer's experiments, and the recent studies by Klein conducted for the Board of Health of the Imperial Government. Unfortunately I cannot speak definitely concerning these for I have not been able to consult the original articles. With these two possible exceptions it would seem that we still are without the perfect individual experiment with every condition fulfilled, free from hiatus, or failing, decisive, *teres atque rotundus*. Nevertheless by a summation of the results gained by such investigators as Ceely, Voigt, Haccius, Hime, Simpson, Copeman and Klein, the failings in some being balanced by due precautions in the others, it is scarce possible to arrive at any other conclusions than the following:

1. Transparent lymph obtained from small-pox patients during the vesicular stage of the eruption is capable of infecting a large percentage of young calves. Older cattle are infected with less certainty.

2. Just as the inoculation of cattle with horse-pox or the retro-vaccination of calves with ordinary vaccine lymph which has been carried on in series through human beings, leads frequently either to abortive or aberrant eruptions in the first animal inoculated, so the inoculation of calves with small-pox virus is usually either abortive or induces an atypical eruption in the first calf of the series, the papules tending to be small, vesiculation and lymph production scanty, the crusts irregularly developed.

3. With further removes the eruption in calves assumes more and more the characters of ordinary vaccinia, until it becomes undistinguishable from the latter.

4. While the lymph from the earlier removes tends occasionally to induce generalised eruptions in the 'vaccinated individuals,' from the later removes local pustules at the region of inoculation are alone developed, and these are not to be distinguished from the eruption induced by ordinary vaccine lymph, save by their regularity and peculiarly "typical" character.

5. Individuals inoculated with such 'variolo-vaccine' are rendered insusceptible to inoculation with ordinary vaccine-lymph.

6. Consequently it is not possible to distinguish between vaccinia and its results in the human being and variola which has been carried through a sufficiently long series of calves, and its results in the human economy.

7. Vaccinia would therefore appear definitely to be variola modified by transmission through the bovine species.

The last conclusion is perhaps inverted; the constancy of the characters of cow-pox, *i.e.*, of the results of vaccine lymph inoculated through a series of calves or of human beings would indicate a stable form of virus. We know from botanical observations that varieties tend to sport more frequently than does the original stock. It is rarely that vaccine sports and induces a general eruption comparable with ordinary small-pox. On the other hand, variola communicated by natural means is most pleomorphic in its results, varying from the mildest discrete vesicles—the old "pearl-pox"—to the confluent and hæmorrhagic forms, and the inoculation with small-pox, so common during the eighteenth century, demonstrated that passage of this virus through a series of healthy individuals tended to the assumption of a mild type of the disease, sometimes so mild that, as noticed by Dimsdale (1768, 1781), there was developed only a local pustule, with no general eruption, and nevertheless the individual was thereby protected. A little-known work by Adams (1807)[1] gives several examples of selective inoculation from mild cases of small-pox resulting in the development of such local pustules without sign of general eruption; so similar in fact was the eruption to that induced by cow-pox that the patients and their friends thought that they were being imposed upon, and Adams had to cease using this strain of lymph. There is not a little probability therefore that "vaccinia" from its stability represents the original or parent type of a disease common to man and several animals, and that variola represents a series of degrees of exalted virulence of the same, brought about by passage through a succession of human bodies under conditions favourable to the propagation and activity of the virus.

What these conditions are we shall not know until the micro-organism of vaccinia (or variola) has been isolated. Every few months we hear that this has been successfully accomplished; now it is a protozoan (Guarnieri), now a bacillus (Klein and Copeman), now a micrococcus (Maljean, etc.) But unfortunately after the discoverers have published their preliminary notes on the matter we hear little more. The time is not ripe to make any statement concerning the bacteriology of these conditions. At most it may be said that vaccinia and variola appear to range themselves with diseases of which we know the microbic origin, and appear to afford examples of variation in virulence and effects, brought about by cultures of a germ through a series of organisms of one or other species. *J. G. Adami.*

[1] A popular view of Vaccine Inoculation, abstracted by Crookshank, History and Pathology of Vaccination Vol. 1, p. 287, 1889.

Diseases of Children.

Night-Terrors.

COUTTS, J. A. "Night-terrors."—*American Journal of the Medical Sciences*, February, 1896.

This writer, after reviewing the conflicting opinions expressed by previous writers on the causation of this complaint in children, sums them up under two groups. In the first are classed the opinions of those who hold that the trouble is either reflex in its origin, or due to partial asphyxia owing to abdominal disturbance, nasopharyngeal trouble, or ill ventilation of the sleeping apartment. In the second, he places the views of those who think night-terrors are central in origin, manifestations of present cerebral disturbance, and harbingers of possible further neuroses in the near or distant future.

These two widely differing views arise from a confusion, under a common name, of two classes of cases which have the occurrence of fright during the early hours of night as a prominent symptom common to both.

In the first class, come cases which are fairly frequent and of little import, where the terror is reflex and due to abdominal or nasal trouble. In the second class, come cases of comparative infrequency but of grave import where the malady arises from central cerebral disturbance.

Dr. Coutts suggests that different names should be applied to these widely differing conditions. For the first class he proposes the familiar name of nightmare, reserving that of night-terrors for the second.

As a cardinal point of distinction between the two complaints, Dr. Coutts insists that in night-terrors it is essential that the little patient should "see visions;" in nightmare, it is sufficient that he merely "dream dreams." Although there are many other points of distinction, this difference is, he thinks, a fundamental one.

In night-terrors, the vision is eminently real to the child, and is generally of a threatening or terrifying nature, in which not infrequently the color red plays a prominent part. Although seemingly wide awake in the attack, the child cannot be made sensible of its surroundings, and generally after being laid down, goes off into a deep sleep without recognizing those around him. In the morning, if carefully questioned, he will be found to have little or no recollection of

what occurred during the night. Whatever the nature of the vision, it is liable to be repeated with almost the same features in each attack.

Comparing with these the symptoms of nightmare, important differences may be observed. In nightmare the sleep is generally disturbed from the outset, and the attack is merely a culmination of the state of unrest. The child becomes wide awake, recognizes those around him, and his fears and fancies will be found to be merely the remnants of a troubled dream. Even after his fears are allayed, excitement prevents sleep coming on at once ; and in the morning the child will be found to have a fair recollection of the occurrences of the previous night. Nightmare is of little moment, but is often associated with chronic ill-health in its subject.

Night-terrors will be found, according to Dr. Coutts, to have been not infrequently preceded by infantile convulsions. There is generally a distinct neurotic family history, and if the after history of the patient is followed up, it will be found that night-terrors are frequently the precursors of such grave neuroses as migraine, hysteria, epilepsy and insanity.

The treatment of night-terrors may, if the attacks are frequent and cause much distress, call for appropriate doses of potassium bromide given at bedtime. If the attacks are infrequent a prolonged course of the bromides would be inadvisable. In all cases any undue mental or nervous strain must be avoided. *A. D. Blackader.*

Empyema in Children.

Koplik. " The bacteriology of empyema in children."

Caillé. " The dangers and peculiarities of pyothorax in children."

Winters. " The treatment of empyema in children."—*Archives of Pediatrics*, February, 1896.

The three papers were read before the Section on Pediatrics of the New York Academy of Medicine.

Koplik, after enumerating the various sources from which microorganisms can enter the pleura, divides all cases into four natural groups. These are : *First.* Metapneumonic—following or complicating simple pneumonia—in which the diplococcus pneumonia is the etiological factor. Exceptionally the pneumonia may be so slight that lung symptoms are absent and the chest is found full of pus on the third day after the initial chill. In a small percentage of cases the streptococcus is also present. The *second* group in which the staphylococcus pyogenes, or a streptococcus, or both, are present occa-

sionally follows lung infection, but more commonly tonsillitis, and even a slight infected wound. The *third* depends upon the bacillus of tuberculosis either pure or with streptococci, and the *fourth* comprises putrid or fetid empyemas, in which perforation of the lung gives access to saprophytic bacteria. A small number of cases due to the typhoid bacillus and the bacillus coli communis are not included in this classification. To the first group belong 60 per cent. of all cases, and probably over 75 per cent. are non-tubercular a much higher proportion than in adult life.

Caillé points out that cold and damp weather, is a strong predisposing factor in empyema, the great bulk of cases being severe in February, March and April. The differential diagnosis between a purulent and serous fluid, he thinks, can only be made by the aspirating needle, hence the physical signs of fluid in the chest in general must be considered. Ordinary subacute cases of pleurisy and cases following pneumonia are not difficult to recognize; the puzzling cases are those in which, after an acute onset, (1) "critical defervescence takes place with dulness on percussion continuing, or (2) a continued irregular temperature curve extends over the second and third week of illness with marked dulness persisting." Two cases are reported, in which, during a week and ten days respectively preceding the operation, entire absence of fever was noted, and yet one, a lad of seven, had two pints of pus in the thorax, and the other, a child of three, had one pint. After enumerating the "rational signs" obtained by inspection, palpation, auscultation and percussion, Caillé takes each up in detail, and shows that it may be absent in special cases; the most constant is perhaps the flatness and marked resistance to the finger on percussion. He insists that the only sure method of diagnosis is the aspirating needle, which has the added advantage of determining the character of the fluid as well as its presence. The puncture is made under strict antiseptic precautions with a rather large needle, and where all the signs point to fluid and none is found, it is repeated a second and even a third time. The exudate obtained is examined microscopically.

Winters sums up the indications for treatment to be removal of pressure from the lung and perfect drainage with antiseptic precautions. He advocates early operation once the active pleuritis has subsided, as the longer the delay the less complete will be the re-expansion of the lung owing to thickened pleura, adhesions, etc. He believes that in recent cases as the pus escapes the tension is relieved and the lung expands, and insists that careful auscultation before and after making the incision, will convince any one that he is correct. Caillé on the

other hand, states that "the reinflation of a collapsed lung exposed to the presence of the atmosphere through an opening in the pleural cavity is a paradox." Winters favours simple incision rather than resection of the ribs, especially in children under two years. He makes his incision two inches in length and at least two inches above the base of the cavity to allow of proper drainage, as the diaphragm rises, and prefers chloroform to ether; anæsthesia should not be complete so that the crying and coughing will forcibly expel the pus. After opening, careful irrigation of the cavity with hot water is carried out, and a drachm or so of whiskey given. The factors which lead to obliteration of the cavity are expansion of the lung, ascent of the diaphragm, and falling in of the chest wall, which latter in neglected cases can be brought about by resection of a rib. *G. Gordon Campbell.*

Infantile Intussusception.

Wiggin, F. H. "On infantile intussusception—A study of one hundred and three cases."—*New York Medical Record*, Jan. 18, 1896.

Clubbe. "Laparotomy for intussusception in very young children." —*Australasian Medical Gazette*, No. 10, 1895; *British Medical Journal*, Feb. 1, 1896.

"Intussusception in Infants."—*The Lancet*, Feb. 1, 1895.

The treatment to be adopted in cases of intussusception occurring in infants has, for some years, been much debated. The papers before us are a strong plea for operation at the earliest possible moment. Dr. Wiggin expresses the hope that the general profession might be impressed with the facts that acute intussusception is in reality a form of strangulated hernia; that the subacute variety is an irreducible hernia; that enemata are far from being devoid of danger in their administration; that abdominal section performed under modern conditions, and during the first forty-eight hours of the disorder has a chance of success represented by 78 per cent., which, if the cases were operated on during the first twenty-four hours, would speedily rise to 90 per cent.

Dr. Clubbe, from his own experience, strongly urges laparotomy as in itself not a difficult operation, and one comparatively well borne by even very young children.

The *Lancet*, in commenting on these cases, writes as follows: If carefully carried out, and if employed within the first forty-eight hours after the commencement of symptoms, inflation and injection are harmless; if they fail, laparotomy may be at once performed without the likelihood of its success having been at all diminished.

That distension can effect a cure in many cases of intussusception no one will deny, but it is equally certain that distension, if employed for too long a time or too energetically or at too late a stage, when the intestinal wall has been weakened, may result in the rupture of the bowel and death of the patient. With inflation it is very difficult to estimate the pressure employed, but with injection, if a funnel be used, the pressure exerted by the liquid depends on the height to which the funnel is raised, and it is important to remember that each foot of height is equal to a pressure of half a pound per square inch of bowel wall ; the funnel should never be higher than 2 feet., causing a pressure of one pound per square inch. If, also, this method be limited to cases seen within forty-eight hours of the onset of symptoms, and be not applied for more than, say, half an hour, the child will not be injured at all, and the chance of success of the laparotomy which should immediately follow if the injection be unsuccessful will not be in any way impaired. It can hardly be doubted that abdominal section in infants does cause a great amount of shock, sufficient in some cases to lead to death, therefore it is not advisable to have recourse to such a treatment until slighter and safer methods have been given a fair trial. *A. D. Blackader*

Reviews and Notices of Books.

An American Text-Book of Obstetrics for Practitioners and Students. By James C. Cameron, M.D., Edward P. Davis, M.D., Robert L. Dickinson, M.D., Charles W. Earle, M.D., James H. Etheridge, M.D., Henry J. Garrigues, M.D., Barton C. Hirst, M.D., Charles Jewett, M.D., Howard A. Kelly, M.D., Richard C. Norris, M.D., Chauncey D. Palmer, M.D., Theophilus Parvin, M.D., George A. Piersol, M.D., Edward Reynolds, M.D., and Henry Schwarz, M.D. Richard C. Norris, M.D., Editor. Robert L. Dickinson, M.D., Art Editor. Published by W. B. Saunders, Philadelphia. 1895.

This is the latest of the series of American text-books published by Mr. Saunders, and it may be fairly said to eclipse all its predecessors. Its distinguishing as well as its most striking feature is its wealth of illustration, some 900 cuts in colours and half tones being scattered through the work. Most of them are original, and whenever old ones have been used they have been retouched or redrawn. As far as possible the cuts have been drawn to a uniform scale of one-sixth or one-third, and great attention has been paid to anatomical accuracy, as well as to artistic effect. In the older books students were often puzzled by the plates representing right sagittal sections in some places, and left sagittal sections in others; but in the American text-book, left sagittal sections have been shown whenever possible in order that one cut may be more easily compared with another. Instruments, too, have been drawn to a uniform scale, and it is possible here to compare one with another and obtain an intelligent idea of their actual and relative size. Dr. R. L. Dickinson deserves great credit for the manner in which he has carried out this important part of the work.

In a composite work, it is impossible to avoid more or less overlapping in the different sections, as well as occasional conflicts of opinion, but it is remarkable how well Dr. Norris has succeeded in harmonizing the various parts so that scarcely any important difference of opinion or treatment can be found in the whole work. In a text-book prepared for students as well as practitioners, it is hard to strike the happy mean so that it may be deep and comprehensive enough for the practitioner, and at the same time clear and concise enough for the student. Perhaps greater difference is noticeable in this respect than in any other in the work of the various contributors. Some enter more into detail for the benefit of the practitioner, while others condense and illustrate for the benefit of the student. The sections on the anatomy and physiology of the female generative organs, to which 143 pages are devoted, are clearer

and fuller than in any other English text-book. The description of the structures of the perineum, the lymphatics and the development of the embryo are especially good. The illustrations are numerous and add greatly to the value of the article. The diagnosis, hygiene and management of pregnancy are then treated concisely and practically. The next section of 133 pages is devoted to the pathology of pregnancy, including abortion and extra-uterine pregnancy. Dr. Howard Kelly's description of ectopic gestation, its symptoms, diagnosis and treatment, is scholarly and practical. The chapters on the physiology of labour and the conduct of natural labour are thoroughly up to date. Diagnosis by abdominal palpation and pelvimetry are well described and illustrated, and also practical rules are given for carrying out antiseptic treatment. Stress is laid upon the proper management of the third stage of labour, the author maintaining that this stage is not complete until uterine retraction is fully established. Lacerations of the pelvic floor are next considered, the proper and improper methods of repair being described and illustrated. In lacerations of the cervix, immediate suturing is recommended only when there is severe hæmorrhage. In the absence of troublesome bleeding, the advantage of the primary suture is considered doubtful. Episiotomy for the prevention of perineal laceration is highly extolled. In describing the method of operating, the author says that the cuts should be made parallel to the long axis of the mother's body and not to the vaginal axis, else the very tissues may be invaded which the operation aims to save. The chapter on the mechanism of labour is well written, taking account of recent contributions by continental authors. A number of excellent diagrams, some of them quite ingenious, illustrate the mechanical actions described. The writer of this section overlaps somewhat the work of other contributors by considering the management as well as the mechanism of labour. The section on dystocia takes up 156 pages; Hirst describes and illustrates the various deformities of the pelvis and the fœtal malformations which obstruct labour in an exhaustive manner, while Parvin and Schwarz treat of dystocia due to accidents and diseases. The physiology, diagnosis and management of the puerperium are satisfactorily treated by Jewett, while the important section on the pathology of the puerperium is contributed by the editor, with the exception of the chapter on puerperal infection, which is written by Garrignes. This chapter, occupying 51 pages, is a masterly exposition of the modern views respecting fever in the puerperium and the modern antiseptic treatment. No stronger proof of the value of antisepsis can be brought than the statistics of the New York Maternity Hospital quoted in this article. From 1875 to 1883, the average maternal mortality was 4.17 per cent.; in 1883 it reached 6.71, per cent., being 20 per cent. in the last month, 15.69 per cent. from sepsis. Then the antiseptic treatment was introduced, and during the following three months there were 102 deliveries without a death. From 1884 to

1893, the average mortality has been 0.87 per cent., the percentage from sepsis being 0.18. The pathology, symptoms and treatment of the various forms of septic infection during the puerperium are treated exhaustively.

The physiology and pathology of the newborn infant occupy 60 pages, and the concluding section of 110 pages is devoted to obstetric surgery, divided into instrumental operations, manual operations and cœliotomy for sepsis in the child-bearing period.

Taken as a whole, the American text-book is the best work we have on obstetrics for the advanced student and general practitioner. It is up to date and practical, embodying the clinical experience of many of the best teachers on the continent. J. C. C.

A Text-Book on Nervous Diseases. By American authors. Edited by Francis X. Dercum, A.M., M.D., Ph.D., Clinical Professor of Nervous Diseases in the Jefferson Medical College, of Philadelphia; President of the American Neurological Association. With 341 engravings and 7 coloured plates. Philadelphia: Lea Brothers & Co. 1895.

This volume, of upwards one of thousand pages, adds another to the already long list of works on nervous diseases. The contributors, twenty-two in number, include many of the leading physicians in the chief medical centres of the United States.

It is generally admitted that the multiplication of systematic works in different departments of medicine is already greatly over done. There can, however, we think, be no question that in the work under consideration the great majority of the authors have given much care and attention to the task allotted them, and have produced a work which, on the whole, will redound to the credit of American medicine.

Many of the contributors to this volume are well known for their work in neurology, and for the most part the articles are very complete, and represent fully the present knowledge on the subjects dealt with.

The first chapter, by Weir Mitchell, is devoted to certain general considerations relating to the examination of nervous cases. This is followed by an excellent account of the relation of changes in the eyes to nervous diseases by Oliver, of Philadelphia.

The articles on neurasthenia and hysteria, by Drs. Dercum and J. Hendrie Lloyd, are very exhaustive. Dr. Osler contributes the section devoted to the diseases induced as the direct or indirect result of infection. Under this heading are described cerebro spinal meningitis, tetanus tetany, hydrophobia and diphtheritic paralysis. The articles on cerebro-spinal meningitis and tetanus are particularly good.

The seventh chapter, treating of the various choreiform affections, by Wharton Sinkler, is an excellent contribution.

The chapters on the general and focal diseases of the brain, by Dercum, C. K. Mills, C. L. Dana and Allan Starr, deal fully and clearly with these important groups of affections.

The chapter on the anatomy of the cerebral cortex and the localization of its functions, by C. K. Mills, is a good summary of our present knowledge of this subject.

The spinal cord affections are dealt with by J. H. Lloyd, Morton Prince and F. Peterson, and the peripheral nerve affections by Sinkler, De Schweintz and Herter. It is needless to say that all these articles show proof of careful study and intimate knowledge of the subject, coming as they do from men who are careful and conscientious observers.

Dr. G. W. Jacoby writes a short but valuable chapter on the myopathic affections.

One of the most valuable chapters in the work is that on the disorders of sleep, headache, vertigo, &c., by J. C. Wilson.

The Editor was fortunate in securing the services of W. W. Keen, of Philadelphia, for a description of the surgical measures called for so frequently at the present day in many nervous affections. Few surgeons have had more experience than Dr. Keen in this department. His article will be welcomed by all who are called upon to undertake cerebral surgery. J. S.

Die Erkrankungen der Nase, des Rachens und des Kehlkopfes. Von Prof. Karl Stoerk in Wien. 1895. Alfred Hoelder. Diseases of the Nose, Throat and larynx. By Prof. Karl Stoerk, Vienna.

This work, from the pen of one of the ablest of European laryngologists, is the result of years of careful investigation. The chapters on the ordinary affections of the nose, throat and larynx are written so as to be of interest to the general practitioner especially.

The chapter on sclerosis of the larynx and trachea is a very exhaustive one on a subject the symptoms of which were first observed by the author himself. It is a matter of regret that this work is accessible only to the student of the German language. H. S. B.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, December 27th, 1895.

A. D. Blackader, M.D., President, in the Chair.

Dr. E. N. Chevalier, of St. Johns, P.Q., and Dr. F. X. deMartigny were elected ordinary members.

Removal of the Upper Extremity for Sarcoma.

Dr. Geo. E. Armstrong exhibited a woman from whom he had removed the whole upper extremity one year previously. (See page 666.)

Dr. Bell said he was glad that this case had been shown to-night, as it emphasized what he had urged at the previous meeting, that this was a suitable operation for the radical cure of some advanced cases of cancer of the breast. It removed all the glands and gland tissues, and as recently done by Mr. Arbuthnot Lane the operation could be so modified as to bring a large flap from behind to cover the area laid bare by the removal of the tissues in front. It was really in many cases the only operation which would radically remove all infiltrated axillary tissue. As Dr. Armstrong had pointed out, it was a very simple operation, although requiring, of course, organized effort and skilled assistants. Dr. Bell referred to a case in which he had done a similar operation in July last for sarcoma of the neck of the humerus encroaching upon the neighbouring tissues.

Dr. A. Lapthorn Smith referred to a case on which he had operated two years before, removing the pectoralis major and minor muscles, as well as the glands in the axilla, most thoroughly, and yet within a few months the arm became œdematous, swollen and painful, doubtless due to recurrence of the disease, for the patient subsequently died in great pain. He felt that the procedure recommended by Dr. Bell would have held out a better chance of a radical cure.

Ophthalmological Specimens.

Dr. G. H. Mathewson presented the following preparations from material derived from Dr. Buller's clinic at the Royal Victoria Hospital:

1*a*. A preparation showing a complete bony cup in the fundus around the optic nerve in a case of phthisis bulb.

1*b*. Microscopical preparation from the same eye, showing the bone cells lying in lacunæ and sending out prolongations into the canaliculi.

The specimens were shown because, though it has long been known to specialists that true bone was found in the eye in such cases, it was thought that the fact might be new to some of the general practitioners.

Bone in the eye in cases of phthisis bulbi was first mentioned by Schoeder, of Prague, 1839, and since his time by Alt, Berthold, Boucheron, Furnari, Jeaffreason, Knapp, Stellwag, Ziegler and many other authors.

2*a*. Two microscopical specimens of melanotic sarcoma of the eye.

2*b*. A microscopical preparation from one of the above.

3. Eye with foreign body (fragment of iron) in the vitreous.

Dr. F. BULLER described the clinical histories of the cases.

Discussion on Cancer—(Continued).

DR. F. BULLER further stated that his experience of cancerous diseases was necessarily limited to those which occurred in the eye and about it. With regard to the eyelids he stated that cancerous growths here were not at all infrequent, and were usually of the epithelial type. Early diagnosis was usually easy, and a radical cure effected by operation when the growth had not reached the periosteum and bone: where however, this occurred, cases were apt to go from bad to worse, and terminate fatally. Dr. Buller stated that the wider his experience became the more firmly he was convinced that cancer was primarily a local condition and that metastases were as apt to occur from soft cancerous growths, as from the harder varieties. On the hypothesis that the cancer began necessarily as a single aberrant cellular element, it was easy to understand that with a growing tissue, some of these elements may enter the circulation and be carried in their germinating state into some other part of the body and there form new "foci." That growths occurring within the eye-ball itself, and not invading surrounding tissues were not apt to recur elsewhere after extirpation, if this be done at a very early period. Where however, sarcoma growing within the eyeball has come to occupy a considerable portion of this space, removal of the eye is nevertheless almost certainly followed by the occurrence of metastases in other organs within a few months.

When we come to enquire what constitutes a cancerous growth, whether it be of the carcinomatous or of the sarcomatous type, we naturally begin the enquiry by searching for common factors, or for phenomena which belong to and are never absent from any new

growth of a malignant nature. Of these there are, so far as I am aware, only two which are characteristic of, and inseparable from, the cancerous groups.

1. There is the incontinent and inordinate development of primitive cellular elements.

2. There is the irrepressible tendency to invasion of adjacent normal tissue. The second characteristic is, however, merely a corollary of the first. If in any given case we follow the process backwards to its very beginning we would necessarily arrive at a period where the original growth consisted of only a few, and finally of only two unphysiological cellular elements. It goes without saying that no pathologist could ever hope to meet with the very beginning of a cancerous growth, or to recognize it even though the two first cellular elements were actually brought within the visual field of his very best microscope, and yet every cancer must be that and nothing more, at the very beginning. I think that in view of this fact it is not difficult to understand that there must be one principle or one law which determines the nature and the beginning of every cancer. There must be a time when a single cellular element secedes from its environment and begins to develop a tissue on its own account. From the moment this cell produces another one like itself the cancer has a *de facto* existence as a separate autonomy. These two cells and all the others which spring from them have ceased to perform any physiological function; they are parasites to the rest of the animal economy, or if you like, so soon as the arterial vascular supply is developed the growth is, properly speaking, autositic.

It seems to me that whoever would find an explanation of any cancerous growth will have to seek for it rather in physiology than in pathology, as a modification of the vital process, or whatever it is we call life. I may be wrong in the assumption, but so far as I am aware, all the morbid growths, for which a known cause exists in the form of certain specific micro-organisms, possess certain characteristics which at once and absolutely separate them from cancerous growths; the tendency to inflammation, degeneration and disintegration characterizes all of them. The opposite is true of the cancerous process, excepting under certain special conditions. A single trachoma nodule in the conjunctiva is as much a new growth as the largest osteosarcoma. The life history of the one depends on the presence, or at least the active agency, of certain micro-organisms; that of the other is the life history of the individual, of the whole being with which it is associated. It does seem to me that the new growths so far recognized as associated with and probably dependent upon micro-organisms

for their development differ so obviously from cancerous growths, that this difference in itself becomes a strong evidence against the micro-organism theory of cancer development. The differences which exist between cancerous growths themselves undoubtedly depend upon the vital properties in other tissues from which the growth originates though they may be, and I may say undoubtedly are, all subject to one fundamental law for their origin and subsequent growth.

In the human eye we have perhaps a better field for the study of cancerous growths than in any other part of the body, for although only two forms of malignant growths are frequent enough in the eye to afford useful material for study, they both represent highly malignant forms of cancer, and in both we can sometimes watch the growth from a very early stage of its development. In both the observer who studies a specimen of sarcoma from the interior of the eyeball, whether from the retina or choroid, will be struck with the fact that the early cancer cells are to all appearances identical with the normal elements of the tissue from which the growth takes its origin. The sole difference that we can be certain of is the incontinent and the invasive nature of the cancer cells.

Dr. RODDICK agreed with the other surgeons that cancer was at first a local disease and could be cured by sufficiently early removal. He looked on local irritation and chronic irritation as the two great causes, and considered that any condition which tended to lower the vitality of the tissues was a strong predisposing cause. To illustrate this, he instanced the fact that hospital patients, who after operation were subjected to poor food, varying temperatures and in general bad hygienic conditions, were much more liable to recurrence than those of the better class living under more favourable conditions. He thought that age and heredity also could not be gainsaid as predisposing causes. The statistics of cases bore this out, and it was universally recognized in questioning patients with regard to their family history. He felt that if pathologists could show that cancer was a parasitic disease they would help the surgeon very much in the treatment and methods pursued in regard to it. His own belief inclined towards the parasitic theory, which was borne out by many clinical facts. The infectious nature of cancer had been pointed out by Mr. D'Arcy Power, who had reported three or four cases occurring very often in the same house, and Dr. Roddick himself had had one instance of this, in which an epithelioma of the hand had been followed by the same form of growth on the face of the nurse in charge. Though experiments in inoculating cancer had been unsuccessful, he thought the method used might be at fault. Plummer had succeeded

in giving cancer to animals by placing portions of cancerous tissue in the vagina. He agreed with Dr. Shepherd in condemning the use of caustics in the treatment of cancer, but considered escharotics as sometimes of service to complete the cure after operation. By the use of Bougard's paste he had often succeeded in removing small growths when the patient refused to submit to the knife. He thought that escharotics should be used only when it was the intention of the surgeon to complete the removal of the growth by that means. The mere application to the surface only irritated.

In excision of the tongue he preferred Whitehead's operation, as recommended by Dr. Shepherd, but differed from him in believing that in certain cases the removal of the lateral half of the tongue was followed by entirely satisfactory results, always provided, of course, the disease was limited to one side. He referred to a case of his own in which epithelioma, verified by histological examination, had been cured by an operation of this description, eight years having now elapsed without a recurrence. Nunnelly's operation, which he had performed several times, was to be recommended when the growth was at the anterior portion of the tongue and when one was not well assisted. It consisted in introducing the ecraseur through an incision in the middle line of the neck into the floor of the mouth and passing through that opening the chain of the ecraseur and then around the tongue. He felt that septic pneumonia had not been so frequent during the days when Dr. Fenwick and he had used the ecraseur in preference to the knife and scissors, although they had not taken the precautions to prevent sepsis, now so well understood. The reason for this was, that the bruising of tissues effected by the ecraseur closed the lymphatics and blood vessels, and thus prevented the absorption which so readily takes place after the knife and scissors. Until granulations had formed and protected the parts it was now his practice to feed his patients entirely by the rectum and thus help to prevent septic infection.

Dr. Roddick agreed with Dr. Bell that the removal of all doubtful tumours of the breast was imperative. Recurrence in these cases was usually in the scar, not in the muscles, which he rarely considered necessary to remove ; the glands of the axilla, however, should always be extirpated. He did not think that the removal of the whole upper extremity, as referred to by Dr. Bell, was at all practicable. Cases which seemed to require this should be left alone. He recommended operation at once in every case of local recurrence, and cited two instances in which the growth recurring locally had been removed four or five times without general infection having taken place.

Sir WILLIAM HINGSTON thought the gentlemen who introduced the discussion had gone over the ground fully. Speaking of the nature of cancer he felt disposed to agee with Dr. Adami, as clinical experience had led him to look on it as commonly the result of inflammatory action. He cited several cases to bear out this view of the nature of cancer ; one especially, in which, after twenty years or more, a sinus at the back of the knee had developed malignant action. He also quoted Jonathan Hutchinson as holding the same opinion. With regard to the parasitic theory, he did not feel qualified to speak; but on general principles he thought it likely parasites would show themselves here, as they did elsewhere, during the course of the disease. He referred to the common experience of benign tumours, especially about the face, taking on malignant action ; and said he made it a rule on this account to remove them after the patient had reached a certain age.

Predisposition, Sir William said, he could not understand, and in this disease he did not know what heredity meant, as, if a cancer subject inherited the tendency from his father, that father must have inherited from some one else, and so back from generation to generation. If the matter of heredity was admitted too fully it would paralyze all efforts.

With regard to the tongue, Sir William thought that partial removal was wrong in principle. While stating this as his general belief, he thought that there were cases where a less extensive operation might be practiced and advocated the occasional removal of half of the tongue when the disease was localized to a small area.

In cancer of the breast he operated early, and especially as pathologists were of the opinion that simple benign growths here might also become malignant. He did not, however, hurriedly resort to the knife in all cases, and related instances in which he had declined to operate twenty or thirty years ago and where the tumour still remained harmless. Sir William recollected the time when it was unusual to operate a second time, and contrasted with this his present method of operating early, as soon as he was satisfied that the growth was malignant, and of repeating the operation again and again if necessary : as many as five times in one case cited. The disease recurred, he thought, generally in the cicatrix and in the skin ; less frequently in the muscles, and rarely in the glands of the axilla : for this reason it was not his practice to remove the glands of the axilla in the first instance, unless they were diseased. Another objection to removing the glands during the first operation was that it added very greatly to the sufferings of the patient and very largely to the mor-

tality, while not unfrequently pain and œdema of the arm followed. He did not feel warranted either in removing the pectoral muscles unless they were diseased. The operation of removing the whole upper extremity for cancer, as suggested by one of the speakers, it was not necessary to speak against, as the patient herself would never submit to it.

In conclusion, Sir William referred to the various operations for removal of cancer of the rectum and claimed that colotomy gave as much comfort in the end to the patient as any attempt at removing the disease, as unhappily cases were rarely seen while the disease was still confined to the bowel.

Dr. A. Lapthorn Smith was firmly convinced that cancer was a contagious disease, and felt quite sure that pathologists would yet come to that decision. He had seen at least three cases of cancer occurring in people who were not related in any way to other cases of cancer, and yet who attended those cases as nurse or friend. Dr. Smith said that though most of the speakers had referred to the great importance of thoroughly removing all traces of the diseased tissue, none had laid enough stress upon the importance of disinfecting the field of operation after the diseased tissue had been removed. In a case of cancer of the breast, for instance, where every portion of the disease had been removed, if one smeared the edges of the wound with cancerous tissue and the disease was a bacillus disease, recurrence locally was to be expected. Dr. Smith referred also to the method of Dr. Byrne, of New York, for removing cancer of the uterus. He cut out small pieces at a time by means of the galvano-cautery until only the mere shell of the uterus was left. His statistics showed that his cases were free from return for a much longer period than usual, and he attributed his success to destruction of the bacilli by heat in the tissues beyond that portion which was removed. The fact that cancer usually, if not always, commenced in unhealthy or scar tissue, the speaker, thought showed that the bacillus of cancer, like that of tubercle, would not attack healthy people or healthy tissues.

Dr. A. Proudfoot advocated the use of caustics in the early stage of epithelioma of the lip and cited cases to show its efficacy. Of epithelioma of the ear, which was not as common as in the eye, he had seen several cases within the last few years, and found that early removal of the affected part was followed by good results.

Dr. Shepherd in reply said that he preferred removal of the whole tongue in cancer and that unless the disease was well forward partial excision was of little avail. Formerly it was his custom to feed for several days by the rectum, but now he never did it, preferring feed

ing by mouth with a tube and funnel and allowing the patient to go about on the second day. In reply to Sir Wm. Hingston's remarks regarding heredity, he wished to say that he did not believe in the heredity of cancer, but he did believe in an inherited vulnerability, and that this vulnerability increased with age. If all were vulnerable every one who smoked should get cancer of the lip. Dr. Bell advised amputation of the arm in certain cases where cancer involved the axillary vessels, but Dr. Shepherd said that if such heroic measures were necessary to remove the local disease, the case was past operating on at all. No account is taken in these very extensive operations of the involvement of the mediastinal glands. At present Dr. Shepherd had under his charge no less than three cases of recurrence or continuance of the disease in the retro-sternal glands, all other parts being free; in one of the cases the patient had been apparently free for four years. In very few of his cases has there been local recurrence; in two the cancer recurred in the bones, and in many in the liver, and some in the cervical glands. One case under care at present was free for six years, and then the cervical and other glands became involved. In another case, first operated on eight years ago, there was local recurrence four or five times, for which operation was performed early; now the patient is still alive and has been perfectly free for four years.

In reply to Dr. Roddick, Dr. Shepherd did not think that locality had anything to do with recurrence, and thought that people living in poor localities resorted to the surgeon later for the primary operation than the well to do, hence the greater frequency of recurrence. As to recurrence being due to the implantation of cancer cells, Dr. Shepherd did not place much credence in this, for in all the modern operations the knife goes so wide of the disease that the cancer cells are not disturbed. The statistics usually given are very fallacious, the results of old and new methods being contrasted when any one wants to emphasize the superiority of his own operation. He thought a great many cases were reported as malignant which were benign, and the speaker would not admit any case to be cancerous without a careful microscopic examination; hence the success of caustics, especially in the hands of quacks, for every case was said to be one of cancer. Caustics were strongly objected to, for their use often postponed operation by the knife until it was too late. The only cases in which the speaker used caustics were those of the cheeks and side of the nose; here thorough scraping and subsequent application of the actual cautery often proved beneficial.

Dr. Bell said, If we assume—and I have heard no dissenting

voice—that cancer is at first a local disease and spreads by infiltration of surrounding tissues, by extension along the lymphatics and only later by metastasis; then the treatment is clearly indicated; when we have metastatic cancer in other organs of the body, of course operation in the hope of effecting a cure is useless. If we accept these statements as facts, the logical inference is, early and wide and complete removal, quite regardless of the deformity resulting or the inability to close the wound over. If the cancer recurs in the scar it shows that it was not removed sufficiently widely at the outset. So far as my experience goes I am surprised at Sir Wm. Hingston's statement that recurrence is generally in the scar and rarely in the axilla,—my experience is, that it is generally in the tissues of the axilla!

It is, I think, utterly impossible to determine before operation for cancer of the breast that the axillary glands are not involved,—hence the rule that the axillary tissues, especially the lymphatic tissues, should always be removed. Of course I would not sacrifice the breast, nor dissect the axilla if I were sure that the tumour was a benign one, but in case of serious doubt, I think it is much better to sacrifice the breast and dissect the axillary space than to run the risk of early recurrence.

The explanation of recurrence in the scar is to be found in the fact that when the disease is advanced, infiltration takes place down to the bony chest wall and it may be impossible to remove the tissues deeply enough to remove the whole of the disease. I think therefore that all the tissues down to the chest wall,—below the lower border of the pectoralis major muscle, and the fascia covering the muscle should always be removed. I do not recommend the removal of the pectoral muscles unless they are actually infiltrated or for the purpose of effecting a more thorough removal of the diseased lymphatic tissues. Many of the cases which present themselves for operation are seen only when the disease is far advanced. In them we have no choice. If we operate it is to remove the whole of the disease,—not a part of it,—and in order to do so it may be necessary to remove portions, if not all, of one or both muscles. And going still further,—when we dissect out the axilla,—often dissecting infiltrated glands from the very walls of the vein and artery, I am sure no surgeon can feel that in such cases he has removed the whole disease, and it is in those cases that I say I believe the upper extremity should be removed, in the hope,—or rather with the certainty of removing all diseased tissue as far along the vessels as the border of the first rib. From a purely anatomical standpoint I am sure that in many cases the operation will remove every particle of diseased tissue and that there are very many cases in which no lesser sacrifice will do so.

I cannot agree with Sir Wm. Hingston that the swelling and œdema of the arm is due to the dissection of the axilla. It does not follow immediately upon the operation but it follows later on, in such cases as I have been describing, and is due to a cancerous mass forming about the vessels and pressing upon the axillary vein.

When we come to the still further advanced extensions along the lymphatics such as those described by Dr. Shepherd, in which the mediastinal glands were involved,—I believe them to be infinitely rare among cases presenting themselves for primary operation and of course under any circumstances such cases could not be cured by removal of the upper extremity or any other operation.

Dr. Proudfoot has spoken of "keeping cancer in check by escharotics!" Now I do not see why we should aim at keeping cancer in check. It is bound to extend and endanger the patient's life and should therefore be removed. With regard to the use of escharotics I do not think they have any place in the treatment of carcinoma, except for palliative purposes or when it is impossible to remove the whole of the disease with the knife, as about the eyelid, extending to the base of the skull, or when it would be injudicious on account of the great deformity produced by the operation.

Dr. ARMSTRONG said:—One point has not been mentioned which was worked out in Germany, that is, that the lymphatics from the breast pass to the pectoral fascia and the lymphatics of the pectoral muscle run forward to the same fascia and therefore it is necessary only to remove the pectoral fascia unless there is some special reason for removing the muscle.

But I think these methods of operating have been pretty well worked out and understood for some time; any one can find information upon them in the standard text-books and journals. My idea was to specially establish the fact that cancer is a local disease and, consequently I thought to bring out evidence or new symptoms which would enable us to recognize cancer in an earlier stage than we have been in the habit of doing. We can operate all right when the diagnosis is made, but we want to be able to recognize malignancy in a mammary tumour at the very beginning, and the same with stomach cancer; to get good results, we should interfere as soon as the disease is initiated, to secure a permanent cure; and that is why I feel that the discussion has gone in a different direction from what I intended it to take. However, we have established the fact that cancer is primarily a local disease, and the early symptoms will be gradually worked out.

When cancer of the breast is diagnosed according to the standard text-books of to-day it is too late to obtain perfect results. When

you get a hard lump with retracted nipple and enlarged lymphatic glands the day is gone by for getting good results.

I think Sir Wm. Hingston takes a very serious responsibility when he advises the leaving alone of tumours of the breast in women approaching the climacteric. They are easily enucleated, and if left alone, may receive an injury, change their character and become malignant. I recently operated upon a malignant tumour of the breast that existed as a simple tumour for thirteen years and then changed its character and became malignant. It is good practice to enucleate these growths while small and simple in character.

Stated Meeting, January 7th, 1896.

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

Removal of a Cyst from the Brain for the Relief of Jacksonian Epilepsy.

Dr. G. E. ARMSTRONG showed the patient, the report of which will be published later.

Dr. F. G. FINLEY stated that the boy had been in his ward and had had several seizures during the first few days he was under observation. After that there had been none for a month. Dr. Finley had witnessed one of the attacks, which affected the head and eyes only. There had been no loss of consciousness. There was lateral deviation of the eyes and of the head to the opposite side, rapid motions of the eyelids, more marked on the right side, the right eyelid opening and closing more forcibly than the left. In other attacks witnessed by Dr. Byers the movements had spread to the right arm and right leg. The attacks were distinctly Jacksonian in character; they had a local commencement and were not accompanied by loss of consciousness. The question of localization had not come up, as the depression settled the point at which to trephine. The lesion found raised the question as to localization of this area. Dr. Finley had mapped out the position of the cerebral fissures and found that the depression corresponded to the supra-marginal convolutions and angular gyrus. Lesions here were known, by experiments in animals, to produce certain movements of the eyes. In a case reported by Ross, of Manchester, the skull had been driven in over this area, and several weeks later the head was drawn to the opposite side and the eyes turned up and to one side. An operation had been successful in relieving the symptoms. During Dr. Armstrong's operation they had been unable to produce the same effects by electrical stimulation of the cortex, and so had not any confirmatory evidence of localization.

Replying to Dr. Wesley Mills, Dr. Finley said the electrodes had

been placed about an eighth of an inch apart and that the current was too strong to be borne upon the lips.

Primary Cancer of the Liver.

Dr W. F. Hamilton read the clinical notes and Dr. C. F. Martin the pathological report, which will be published next month.

The Treatment of Inebriety as a Disease.

Dr. O. C. Edwards of Ottawa, read a paper on this subject in which he endeavoured to show that the hypodermic administration of gold was a specific. He gave the results of two years' experience, during which he had treated over fifty cases, and always with benefit at first. The treatment he considered, presented four principal indications as follows:

(1.) To subdue the overmastering appetite for liquor, whether constant or periodic. This was done by giving hypodermic injections of the chloride of gold and sodium three or four times a day, using Wyeth's tablets of $\frac{1}{20}$ of a grain for the first two days and then diminishing the dose to $\frac{1}{40}$ of a grain for the rest of the time the treatment was kept up. The injections were continued for a period of over three, but usually under four weeks, and in some cases it was thought advisable to substitute $\frac{1}{40}$ of a grain of nitrate of strychnia for one of the daily hypodermics. The solution of gold used, could be made by dissolving three grains in an ounce of boiled water; ten minums constitute a dose, but the tablets had been found less irritating and more reliable.

(2.) To give a hearty appetite for nourishing food: This was accomplished in the usual manner with vegetable bitters, any preparations of which were suitable, provided they contained no alcohol. For this purpose Dr. Edwards had had prepared by Wyeth non-alcoholic tinctures of cinchona, calumba, gentian, etc., which he used in conjunction with some preparation of kola.

(3.) To procure healthy refreshing sleep: Bromide of soda and chloral hydrate were mainly relied upon; where these failed he had resource to the hydrobromate of hyoscine hypodermically; but hypnotics were never needed except for the first two or three nights. Sleep after that was calm and refreshing, and Dr. Edwards considered that the gold was mainly responsible for it.

(4.) Nervine tonics:—The following formula was recommended:

Quininæ sulp.	gr. $1\frac{1}{2}$
Strychninæ nitrat.	gr. $\frac{1}{60}$
Olei resini Capsici	gr. 1
Zinci oxidi	gr. 2
Acidi arseniosi	gr. $\frac{1}{60}$
Ferri reducti	gr. $1\frac{1}{2}$

Sig: one three times a day after meals. In some cases it was thought advisable to leave out the iron.

At the outset of the treatment a purge of calomel was given, and where liquid foods were necessary, as was often the case, beef juice or beef jelly. The administration of the gold, the bitters, and the nervine pills was continued throughout the whole time, and often the nervine pill was given alone for a couple of weeks, after the hypodermics were stopped. The usual precautions in regard to sterilizing the hypodermic syringe were carried out, and on account of the corrosive nature of the salt, a platinum needle was found necessary to prevent clogging. The administration of alcohol was regulated according to the wishes of the patient at the outset. If a man was drinking when treatment began, he was allowed to have a limited quantity as long as he had any desire for it. As a rule, the taste was gone after a few days After the habit was once broken off the patient was warned against even taking the smallest quantity, either socially, in medicine, or in any other way, as one taste of alcohol could at any time awaken the appetite again.

Dr. T. J. W. Burgess said he agreed with Dr. Edwards that inebriety was a disease. but he went even further in that he considered it a disease long before the stage at which he (Dr. Edwards) set it down as such. It was a disease of which the most prominent symptom was lack of will power, and the majority of its victims were inheritors of an unstable nervous organization. Such men knew what the inevitable result of their conduct must be but they had not the will power to resist.

As regarded the gold treatment, he knew that similar results were got by cutting off the patients' liquor supply and building up their system generally. Such patients would tell you, like Dr. Edwards' that they had lost all craving for drink. In some cases the effect produced was permanent, but in the majority it was only temporary, the patient yielding when again placed within the reach of temptation.

Dr. Jas. Stewart said he had no practical experience of any of these forms of treatment, and he had no faith in this more than another. A certain percentage of cases were followed by a cure in anything making a powerful impression on the nerve centres. He did not think that Dr. Edwards had proved his point. Hypnotism had been found equally good. The disease was due to paralysed control.

Dr. J. B. McConnell agreed with Dr. Burgess in looking on the inebriate as a neurotic. He himself, in a paper read before the Society a couple of years before, had reported identical results from the use of strychnia.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

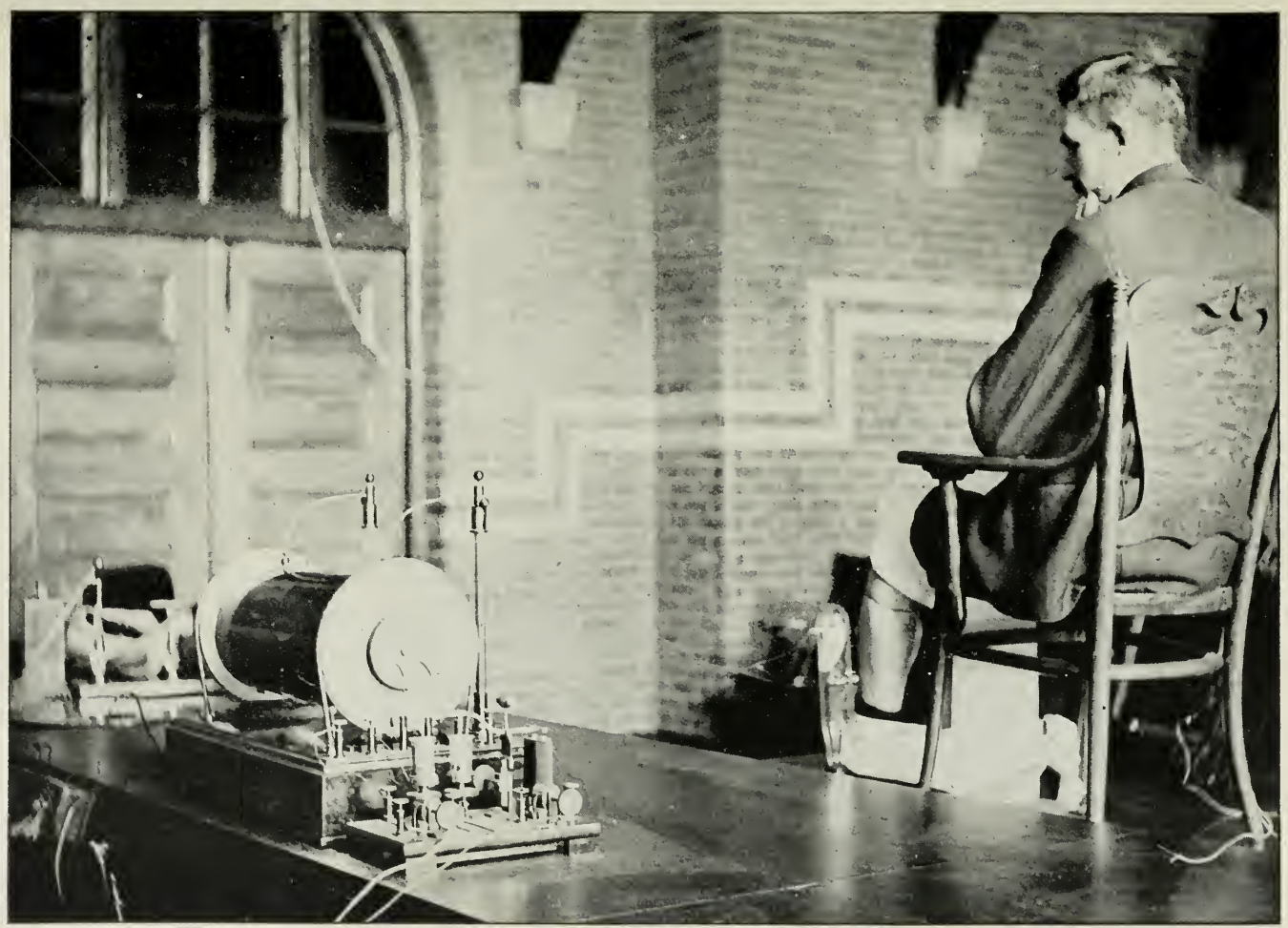
VOL. XXIV. MARCH, 1896. NO. 9.

ROENTGEN'S DISCOVERY.

It is with no little pleasure that we call attention to the article in this number by Professor Cox, describing as it does and illustrating the first application, to diagnostic purposes, on this continent, of Roentgen's remarkable discovery. Appealing for the moment to local interests, it is to us most gratifying to be afforded this example of the benefit to be reaped by a University in possessing well-directed and well-equipped laboratories, most gratifying to read these early fruits of Mr. W. C. McDonald's princely munificence.

Professor Roentgen, in his original paper, gave so full an account of the character and properties of the new rays, that the researches made all over the world during the last two months have added little to our knowledge, have accomplished scarce anything beyond amply confirming the original and most modest statements. At most Professor Salvioni, of Perugia, by an instrument which he terms the iristoscope would seem to have been able to render the "shadow effects" recognizable directly to the naked eye, and at Toronto it has been observed that the rays may be concentrated to a certain extent by reflection from surfaces relatively opaque to the rays. We congratulate our sister city very heartily upon this advance. But as to the exact nature of the rays—whether they are the longitudinal vibrations foretold years ago by Lord Rayleigh, or whether they consist of peculiarly small and frequent transverse vibrations of the ether, as Professor Schuster, of Manchester, and others have suggested—we as yet do not know, nor does it appear likely that we shall gain further information until researches of another order throw light upon the matter. Mere photography, or "radiography" as Professor Goodspeed, of Philadelphia, would term it, is incapable of solving the problem.

In the meantime this new "radiography" has already proved



THE NEW PHOTOGRAPHY.

itself of surgical use. The number of cases in which it can be applied may be few, nevertheless they certainly exist, and it is for us to hail with cordial welcome each advance towards more perfect diagnosis, however limited be its application.

THE POST-GRADUATE COURSE AT McGILL.

We would again draw attention to the announcement in our advertisement columns of the forthcoming Post-Graduate course at McGill University. A study of that announcement will show that while the evening lectures are intended to illustrate the recent advances that have been made in medical and surgical sciences, such advanced lectures form but a small portion of the course which, in the main, is arranged so as to be essentially of a practical nature, clinical instruction and instruction in modern medical and surgical methods (wherein are included the methods of the more specialized branches of our profession), occupying the foremost place. The aim of the Medical Faculty has throughout been to inaugurate a thoroughly useful course, and with the admirable hospitals of Montreal, the abundance of clinical material, and the excellent laboratory accommodation at McGill University, the aim ought to be fully accomplished.

The Canada Medical Record is now owned and edited by the Medical Faculty of the University of Bishops College. Dr. J. B. McConnell is editor-in-chief.

In Paris it is proposed to issue to medical men, upon payment of a small fee, a card called a *coupe-fil.* This will give them the right of way across processions or other obstructions. We believe that in some American cities a similar system is in vogue.

NEW BOOKS, ETC, RECEIVED AND NOTED.

Cholera in Calcutta in 1894 and Anti-choleraic inoculation. Reprint from the Health Officer's Annual Report.

Annual of the Universal Medical Sciences, Sajous. Philadelphia: The F. A. Davis Co. 1895.

Transactions of the College of Physicians of Philadelphia. 1895.

Report on the Scientific Study of the Mental and Physical Conditions of Childhood. London: Committee of Parkes Museum. 1895.

Nephritis of the Newly Born. By A. Jacobi, M.D. Reprint from the New York Medical Journal, Jan. 18, 1896.

The Journal of Experimental Medicine. Volume I. No. I. New York: D. Appleton & Co., January, 1896.

Anti-Cholera Inoculation. Report to the Government of India. By Wm. Haffkine. Calcutta: Thasker, Spink & Co, 1895.

Transactions of the Medical Society of the State of North Carolina. 1895.

The Natural Arsenical Waters of La Bourboule. London : The Sanitary Publishing Co.

Changes in Lepra and Eczema. By J. L. Milton, M.R.C.S. Reprint from the Edinburgh Medical Journal, July, 1895.

Hypertrophic Rhinitis. Reprint from the New York Medical Times, February, 1896. Rhinological Don'ts. Reprint from the Texas Medical Journal, May, 1895. By Edward J. Birmingham, A.M., M.D.

Surgical Treatment of Laryngeal Tuberculosis. By J. W. Gleitsmann, M.D. Reprint from the New York Medical Journal, October 19, 1895.

The Prophylactic Clothing of the Body chiefly in Relation to Cold. By W. F. Cleveland, M.D. London : H. K. Lewis. 1895.

Sleep in its Relation to Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D. Reprint from the Medical Record, Nov. 20, 1895.

Lewis's Nursing Chart. London : H. K. Lewis.

The Nature of Family History and Personal Condition in Estimating a Liability to Consumption. The Mutual Life Insurance Co., of New York. 1895.

An American Text-Book of Surgery. Philadelphia : W. B. Saunders. 2nd edition.

The American Year-Book of Medicine and Surgery. Philadelphia : W. B. Saunders.

The Treatment of Pulmonary Consumption. By Vincent Dormer Harris and Edwin Clifford Beale. London : H. K. Lewis.

THE

MONTREAL MEDICAL JOURNAL.

VOL. XXIV. APRIL, 1896. No. 10.

Original Communications.

DIPHTHERIA.[1]

NOTES ON TREATMENT BY ANTITOXIN.

By ALFRED T. BAZIN, M.D.,

Resident Physician, Montreal Civic Hospital.

My remarks shall be confined strictly to the clinical phases of the antitoxin treatment of diphtheria and based on the observation of 93 cases from their admission to the hospital to their termination, with record of 10 others, also treated in the hospital but not followed by me, making a total of 103 cases, the first fifty of which have been traced after the lapse of from one to four months and questioned as to the occurrence of any sequelæ.

Naturally the points first calling for consideration are those concerning the administration of the antitoxin, viz:—the choice of the syringe and of the site of injection.

I have used both a bulb syringe and a washer syringe, and am entirely in favour of the former. Of the bulb syringes, that known as the Koch syringe can be taken as the type. It consists of a graduated glass barrel ground at one end to receive the needle, and at the other to fit into an attachment to which is applied the bulb and which is provided with a stop-cock. The advantages of this syringe are:

1st. Absence of all threads and fittings to retain small quantities of serum and therefore absence of all risk of septic infection of the wound if ordinary sterilizing precautions are taken.

2nd. Absolute control of the exit of the serum and control against its loss by the tap which is inserted in the upper fitting.

3rd. An instrument which is unalterable in length and which at the greatest is not more than 9 inches long.

[1] Read before the Montreal Medico-Chirurgical Society, March 6, 1896.

The disadvantages are two: 1st. In all of the syringes the needles are of an unnecessarily large calibre. 2nd. Care must be used in selecting a syringe, as in many the fittings are not accurately adjusted.

The stiffness or inflexibility of the syringe I regard as an advantage rather than otherwise, for one hand suffices to control the instrument while the other can assist in steadying the patient.

The disadvantages of the ordinary plunger syringe are very apparent.

1st. Small quantities of serum may lodge about the washer and decompose so that careful sterilization, even boiling, is necessary before each injection.

2nd. If the washer be of asbestos this may shred and a small fibre block the needle.

3rd. They are more or less unwieldly, being from 8 to 14 inches long when the plunger is drawn out, and unless there be a short rubber tube between the needle and the syringe, this length interferes greatly with the insertion of the needle, the patient moving some part of the body and thereby striking the end of the syringe.

The site of injection is of course open to choice. I have used the buttock, the interscapular region, and the infraclavicular regions. The buttock I have discarded as being more or less dirty, especially in children, and the intercellular tissue being more dense and the skin less loose, the injection therefore causing more pain than in the other regions. There is very little choice between the back and the breast. The former cannot be seen by the patient, which is in some an advantage; the skin over the latter is somewhat thinner.

It has been recommended by some to inject deeply into the muscle, as it is supposed to be less painful, but I have found that it is distinctly the opposite, and also that the injection is very slow and requires much greater force applied to the syringe. The needle being introduced well into the subcutaneons tissue, the serum will flow rapidly and without much pressure being applied, and will diffuse itself, raising a tumour which disappears with the rapid absorption of the serum. It is better to inject slowly as there will be less pain both at the time and afterwards.

Of the pain and discomfort I can speak from personal experience. I received 10 cc., in the interscapular region and was surprised at the absence of all pain except that produced by the prick of the needle. The flow of serum was almost devoid of sensation and if I had not known what was taking place, I could not have given any answer as to the proceeding. In from 4 to 6 hours after the injection there begins to be a good deal of discomfort about the part. This seems to

be first a superficial hyperæsthesia, secondly a deep pain as of a bruise. Movement of the underlying muscles is also very painful and for this reason the breast may be considered better than the back as there is less movement when the patient sits up, which posture has to be assumed frequently for the employment of local treatment. This condition lasts for about 18 hours. We have tried various means to prevent or allay this pain but without much result. Camphor chloral painted on the skin relieves the hyperæsthesia, but not the bruising pain.

When the breast is selected the needle should be inserted not lower than the second space and pointing upwards and outwards. Lower insertions are often followed by pain shooting down the inner side of the arm, due most likely to disturbance of the intercosto-humeral nerve.

The proper dosage is the most important question. As different preparations of the serum are made to possess different degrees of antitoxic power, it will be confusing to speak of absolute quantities, therefore I shall designate doses as half, single and double; a single dose of Schering's being 5 cc., while that of Roux's is 10 cc.

The ideal dose is just that amount, and no more, which shall entirely render inactive the amount of diphtheria toxin absorbed by the system. But this amount can only be guessed at.

If at the first injection a quantity be given which neutralizes the effect of only two-thirds of the toxin absorbed the remaining one-third will continue to invade the system, while at the same time more toxin will be produced by, and absorbed from, the only partially cured local lesion, and in a short time the amount of toxin in the body will be as large as was at first present. For this reason it is better to give an overdose rather than an underdose.

Certain crude rules for dosage are given, but the results are most uncertain.

Given a case of ordinary faucial diphtheria—in children under one year where the disease has lasted not more than thirty-six to forty-eight hours half a dose will usually suffice. From 1 to 10 years a single dose must be given and over 10 a double dose, although from 10 to 18 a single dose can first be tried and will very often prove successful.

In laryngeal diphtheria it is not always necessary to increase the dose, in fact not at all when there is only very little laryngeal stenosis. When the labour of respiration is great, however, a double dose should immediately be given, or if the child were under two years a single dose and repeated within six hours.

Nasal diphtheria requires the large dose in almost every case, and it is better to start with a dose and a half or a double dose, according to the age of the patient.

The second dose—this should only occasionally be necessary, and is then due to a misconception, although inevitable, of the amount of toxin absorbed.

The necessity of a second dose cannot be determined by any one symptom, such as the temperature, although this is the most reliable The general condition of the patient, the amount of depression, the subjective and objective symptoms of the local lesion, must all be taken into account.

Roux advises that when the temperature rises above 100½° a second dose should be given. In many cases this temperature, or even a higher one, on the day after the administration of the antitoxin is due to the absorption of septic poison, and therefore will not be influenced by diphtheria antitoxin. Again, in other cases the local inflammation will be active, while the temperature may never be above 99½° or 100°.

When a second dose is given it should be nearly, if not quite, as large as the one previously given, as this will insure against almost all possibility of the case requiring a third dose. In only 3 of the 103 cases was a third dose administered, and in two of these there followed a suspicious desquamation, leading to the belief that a mild scarlatina might have been complicating the diphtheria.

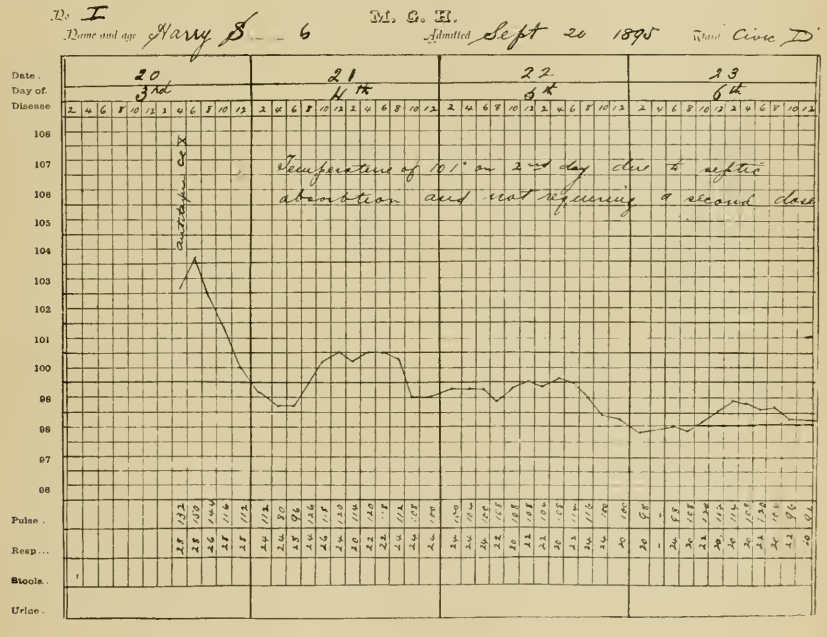
The immediate effects of the antitoxin are varied.

Upon the temperature: In the majority of cases there is a reactionary rise beginning in from one to two hours and lasting four to ten, the temperature rising from ⅔° to 3°. The amount of reaction seems to bear no relation to age, to the severity of the disease, or to the height of the original fever. In many cases there is no reaction whatever, the temperature gradually falling, and in a few cases there has been a sudden and decided drop.

After the reaction has spent itself the temperature begins to fall, and in ten to twelve hours may have reached normal. If the amount of antitoxin given is quite sufficient for the case the temperature chart will then exhibit slight evening exacerbations for one or two days, followed by a normal course. If the dose is not sufficient the temperature will either not fall at all, or after the reaction will fall to about the height of the original fever, or after having fallen to or nearly to normal will gradually again rise to a considerable extent.

It is on the heart's action that the most varied effects are seen. In the majority of cases the pulse is unaffected, in many it is depressed,

and in a few it seems to be strengthened, certainly it is slower than before the injection. Here again, the results seem to be independent of age and severity of disease, although when depression does occur in infants it is severe. This depressing action on the heart usually commences in from one to four hours and lasts for about twelve hours. In the large majority it is not sufficient to cause alarm and is easily overcome by a small amount of alcoholic stimulant. Much stress has been laid upon this effect of the antitoxin, some going so far as to state that the depression in quite a number of cases amounts to collapse and even death. In only one instance have I noticed this—a child, 18 months old, in which six hours after the injection of 8 c.c. (Roux) the



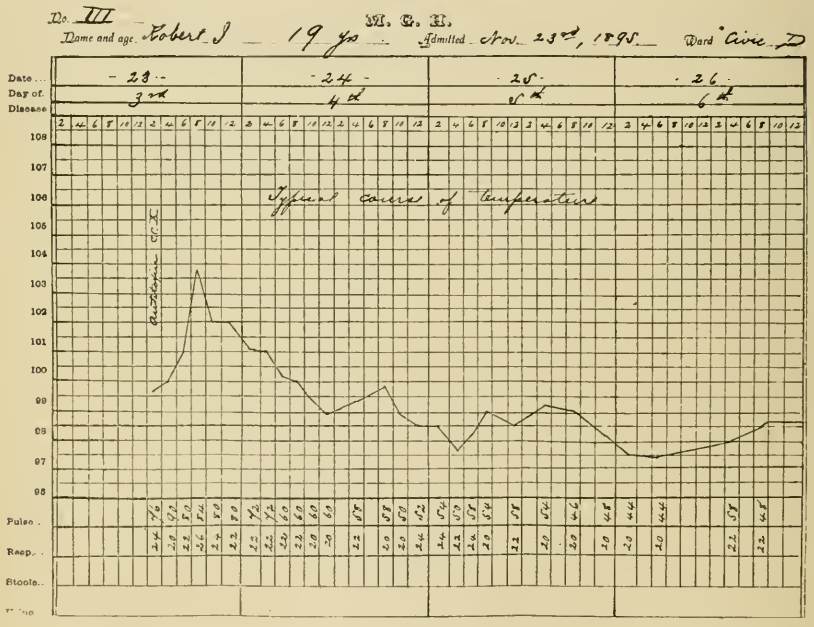
pulse rose to between 180 and 200 and the general appearance simulated collapse. This condition was rapidly recovered from and that same day the child was bright and active.

There was another case which resulted fatally, but I think the antitoxin cannot be blamed. Child, 15 months old, admitted with laryngeal obstruction and great respiratory labour, which decreased to such an extent by the effect of the steam as to be almost imperceptible. The pulse at this time was rapid, feeble and irregular; 10 c.c. antitoxin were given. In about two hours the respiratory labour suddenly recurred and intubation was decided upon. While this was being done the child's head fell forward and respiration stopped. The

intubation was completed and artificial respiration showed comparatively free entrance and exit of air, but the stethoscope could distinguish no heart sounds.

On the other hand, some observers state that almost invariably the pulse is strengthened. This I have found only occasionally, and I am of the opinion that perhaps this stimulating action may be due to something besides the serum, viz., the preservative used. In some preparations camphor is thus employed, and it may be in quantity sufficient to disguise the effect of the serum itself.

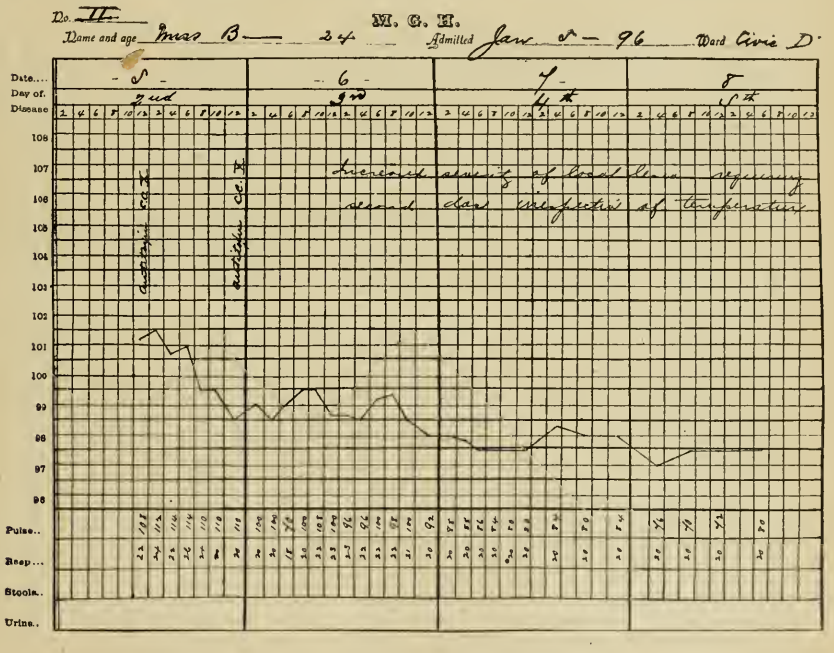
On the general condition of the patient the effect is marvellous. If the first dose be sufficient to terminate the disease the constitutional



depression will rapidly disappear. For the twelve to eighteen hours immediately following the injection and during the reaction the depression may be somewhat more marked and the patient may experience severe headache, but refreshing sleep is usually enjoyed and the patient wakens quite himself, the throat alone reminding him of his illness. Not uncommonly I have discovered children playing with toys on the second day. This picture contrasts forcibly with the clinical aspect of a case treated without antitoxin, where the constitutional disturbance is marked for a week or more and where the attack leaves the patient in a more or less exhausted condition.

Indeed, with the majority of cases treated with antitoxin the patients tire of the bed long before it is prudent to let them up. As a rule we allow patients up when the temperature has been normal from four to seven days, according to the severity of the attack, and in very few instances have they seemed to be weakened by the disease.

The marked influence of the antitoxin upon the local lesion is easily seen when a case is compared with one treated by the old method. Instead of the membrane spreading for two or three days and persisting for a week or ten days, it is usual to have the throat perfectly clean in four days. In eighteen hours or less there will be seen a narrow, bright red line, the line of demarcation, situated around the

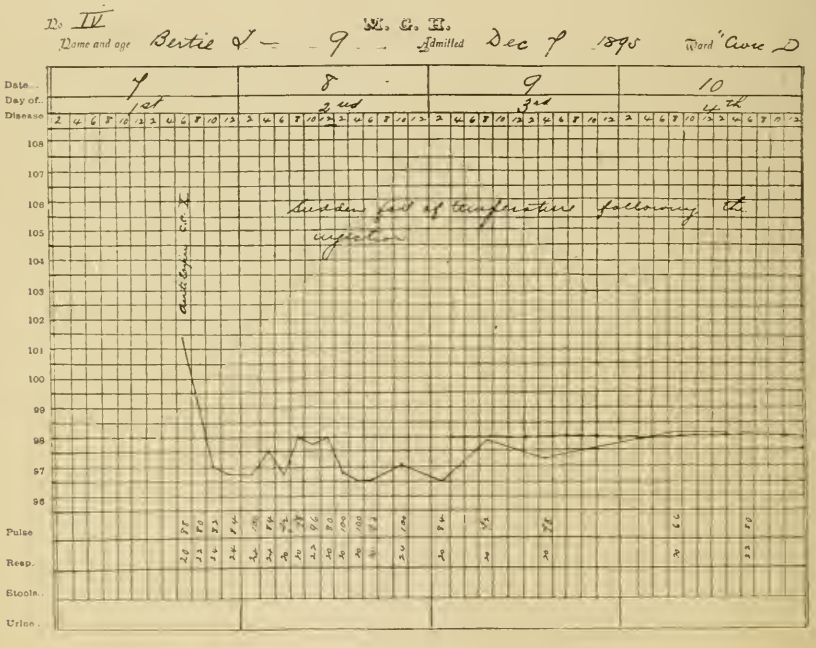


membrane, or more commonly just beneath its edge, and if suitable local measures are adopted, the old necrosed tissue will separate and there will be no further advance of the process. It is here that much delay may be occasioned by employing methods of local treatment which are too rigorous and therefore irritating. The cells are already weakened by bacillary irritation and will be damaged all the more by chemical or mechanical irritation. Often and often cases will present themselves in which thin membrane will persist and even extend while being sprayed with hyd. perox. Stopping the peroxide and substituting a spray of some bland solution, such as Dobell's, will rapidly

improve the condition and the parts will be clean within twenty-four hours. In the hospital we are in the habit of spraying with peroxide only for the first few hours, or as long as the membrane is thick and dirty, after which we spray with Dobell's solution, or stopping the spray altogether swab with a weak solution of hydrarg. bichlor. or boracic acid.

By some there are two bad effects attributed to the antitoxin. 1st. Albuminuria. 2nd. Occurrence of rashes.

Albuminuria is most common in diphtheria, being present in 50 to 70 per cent. of cases, in the mild as well as in the severe. In some



cases the disease sets in with total suppression, while in others the albumen does not appear until the second week. To affirm then that antitoxin causes albuminuria is manifestly unfair. Not only does antitoxin not cause albuminuria, but it prevents its occurrence and reduces the frequency over 30 per cent.

Of the 103 cases only 36 showed albumen. In 15 the albumen was present before the administration of the antitoxin; in other 14 cases no specimen was obtained till after the injection and albumen was found on the first examination. The remaining 7 cases developed albumen from the first to the eleventh day. In only five cases in

which opportunity was given to examine the urine before the injection, did I notice any increase in the amount of albumen following the injection. The amount of albumen in most cases is small and is present only from one to five or six days, in other cases there is organic nephritis.

Of the 10 cases which terminated fatally, all but two had severe nephritis on admission. In one of these the urine was abundant, but all lost, and the other was in the hospital only two hours before death and no urine was passed. Of the other eight cases, five died directly of uræmia, and one of uræmia and hæmorrhage. In three of the five there was a history of total suppression during the twelve to eighteen hours preceding admission.

Nephritis then being the complication to be dreaded it is well to take for granted, till negatively proved, that in every severe case the kidneys are affected and to treat the patient accordingly.

The occurrence of rashes causes some worry on the part of the parents, but does no harm.

These rashes are of two kinds: 1st. An erythematous blush occurring most commonly on the upper trunk and coming out a few hours after the injection. How much of this is due to the reactionary fever it is hard to say. I have never seen it simulate a scarlatina rash as it is a simple erythema, and lacks the maculæ of that eruption. This rash lasts only a short time.

2nd. Urticaria. This is the more common eruption in my experience. It may be either general or local, sometimes developing into typical erythema multiforme with rise of temperature and joint pains. In almost every case I have ascertained that the patients were more or less prone to attacks of "hives" and usually the parents thought nothing of its occurrence.

The eruption is more or less symmetrical, in my own case perfectly so, the wheals occurring on the thighs, the extensor surfaces of the arms and forearms, on the metacarpo-phalangeal joints of the thumbs and on the back of the heels.

The rash shows itself in from ten to twenty days after the injection, and lasts two to five days. In three cases the eruption assumed a circinate form and was accompanied by elevation of temperature and in two cases by pains in the joints.

Independent of this more or less general urticaria there is often a somewhat similar eruption localized to the point of injection, characterized by the appearance of a few papules and very itchy, especially at night, this condition lasting for a month or more.

The last point I shall discuss is that of the sequela of diphtheria—paralysis:

Present in 15 to 20 per cent. of cases not treated by antitoxin, it is now found more frequently owing to the fact that with the antitoxin severe cases recover, and so give the paralysis the necessary time to develop. Thus of fifty cases traced I found paralysis in 12 or 24 per cent.

The question of how early the antitoxin must be given to prevent the onset of paralysis is an interesting one as affecting prognosis.

I will cite the following case :

Miss B., aet 25, a night nurse in the diphtheria wards awoke at noon with sore throat. In the evening one tonsil appeared reddened and at the upper corner was a small white spot. By the following morning this had spread to the anterior pillar and the patient was given a full dose of antitoxin, twenty hours only having elapsed since the onset. In 14 hours the dose was repeated as the local lesion had become greatly intensified. The patient recovered rapidly but on the 17th day developed paralysis of the palate with neuritic pains in the arms and legs which were present for about four weeks. In this case twenty hours had elapsed from the onset to the first dose, and only thirty-four before the disease was permanently arrested, and still the nerves had been sufficiently damaged to produce paralysis. As a rule however, paralysis follows only in those cases in which the disease has been present three or four days, and the local inflammation is severe and extensive.

Having thus briefly outlined the treatment, I will add that its results in the hospital have fully justified its employment and the high praise given to it.

Of 103 cases we have had 10 deaths, and most of these came to the hospital in a hopeless condition, the average duration of the disease before admission being five days.

Of 18 laryngeal cases five died, one of broncho-pneumonia three days after tracheotomy, two of anæmia on the second and fifth days respectively, the other after all respiratory trouble had ceased ; two of cardiac failure, on the third day and two hours after admission. All of the fatal cases were associated with pharyngeal and two also with nasal diphtheria.

Six of the cases required operative interference, three intubation followed by tracheotomy, and three intubation alone. There have been two recoveries in each. The use of antitoxin greatly shortens the period necessary to employ the laryngeal tube, 42 and 34 hours respectively being the two successful cases.

Diphtheria Antitoxin Statistics, June, 1895, to December, 1895.

	Sex.	Age.	Physical Condition.	Duration of Disease on Admission.	Location of Membrane.	Complications on Admission.	Dose of Antitoxin. 1st.	2nd.	Time after 1st.	Reason.	Effects on Pulse. Rate.	Force.	Temperature. Reaction.	Febrile Duration.	Albumin Before.	After Amount.	Time of Appearance
1	Female..	3 years.	Good	2 days	Nose, Pharynx		10 c.c.				+	—	3° in 4 hours	3 days			
2	Male	1½ "	Good	30 hours	Pharynx		8 "				+ +	— —	1½ in 4 "	7 "			
3	Female..	11 "	Fair	8 days	Larynx, Pharynx	Laryngeal stenosis	20 "				+		2° in 4 "	4 "	Slight		
4	Female..	6 "	Poor	2 "	Fauces		10 "	10 c.c.	40 hours	Croup	+	—	1° in 1 hour	4 "			
5	Male	3½ "	Good	2½ "	Fauces	Suppresion of urine for past 10 hrs.	10 "	10 "	20 "	Sustained fever			in 4 hours		Thick		
6	Female..	25 "	Fair	2½ "	Fauces		20 "						1½ in 8 "	2 days	Trace		
7	Female..	10 "	Good	6 "	Fauces		10 "				—	+	None	3 "	None		
8	Male	28 "	Good	5 "	Fauces	Paralysis of palate	20 "					—	1° in 6 hours	2 "	None		(1)
9	Male	2½ "	Good	18 hours	Larynx, Fauces	Laryngeal stenosis (tracheotomy)	10 "	10 cc	22 hours	Rise of temp.			½ in 4 "	7 "			
10	Male	10 "	Good	2 days	Fauces		10 "						½° in 5 "	1 day			
11	Female..	5 "	Good	3 "	Fauces		10 "	10 cc.	40 hours	Rise of temp.	+	—	½ in 4 "	5 days	Abundant		
12	Male	8 "	Good	1 day	Fauces		10 "						1° in 4 "	2 "			
13	Male	27 "	Good	2 days	Pharynx		20 "						1½° in 4 "	2 "			
14	Male	4½ "	Poor	2 "	Larynx, Fauces	Laryngeal stenosis	20 "				—	+	2° in 6 "	3 "	Present	18 hrs.	after admission
15	Male	6 "	Good	1 day	Fauces		10 "				+		None	1 day		1st	specimen
16	Male	6 "	Fair	3 days	Fauces		10 "				+	—	1° in 2 hours	3 days		1st	"
17	Male	10 "	Good	2 "	Fauces		10 "	10 cc.	20 hours	Rise of temp.			1½ in 8 "	4 "		1st	"
18	Male	12 "	Good	3 "	Nose, Pharynx		10 "						1° in 8 "	2 "			
19	Female..	5 "	Good	3 "	Nose, Pharynx		10 "				+ +	—	2° in 4 "	5 "			
20	Male	9 "	Fair	3 "	Fauces		10 "						3° in 8 "	2 "			
21	Male	7 "	Fair	4 "	Nose, Pharynx		10 "				+		2° in 8 "	2 "			
22	Male	9 "	Fair	2 "	Fauces		10 "				—	—	½ in 4 "	2 "			
23	Male	2 "	Good	3 "	Fauces		10 "	6 cc.	24 hours	Croup	+	—	None			1st	specimen
24	Female..	6 "	Good	1 day	Nose, Pharynx		10 "						½° in 2 hours	4 days			
25	Female..	13 "	Poor	5 days	Nose, Pharynx	Nephritis	10 "				—	+	None	4 "	Thick		
26	Male	4 "	Good	1 day	Fauces		10 "				+		None	2 "			
27	Female..	5 "	Fair	12 hours	Nose, Pharynx		10 "				—	+	½ in 6 hours	2 "			
28	Male	12 "	Good	1 day	Fauces		10 "				+	—	2½ in 6 "	1½ "			
29	Female..	6 "	Good	12 hours	Fauces		10 "						½ in 10 "	2 "		4th	day
30	Female..	2 "	Fair	7 days	Nose, Larynx, Fauces	Laryngeal stenosis	10 "				+	—	½ in 6 "	3 "		1st	specimen
31	Male	28 "	Good	6 "	Fauces		20 "				—	+	1½ in 2 "	1 day	Trace		
32	Male	3 "	Good	7 "	Larynx, Fauces	Laryngeal stenosis	10 "	10 cc.	18 hours	Increas'd resp. lab'r	+		None	2 days		No	specimen
33	Male	3 "	Fair	4 "	Fauces		10 "				—		None	2 "	None	4th	day
34	Female..	28 "	Good	3 "	Larynx, Fauces		20 "				+		None	3 "			
35	Female..	23 "	Good	2 "	Nose, Pharynx	Nephritis	13 "						None	3 "	Thick		
36	Female..	5 "	Fair	1 day	Fauces		10 "				+	—	None	None			
37	Male	5 "	Good	3 days	Fauces		10 "						½ in 2 hours	2 days			
38	Male	22 "	Fair	12 hours	Fauces		10 "						1° in 6 "	2 "			
39	Male	10 "	Good	2 days	Fauces		10 "				—		½ in 6 "	2 "			
40	Male	24 "	Good	0 "	Pharynx		10 "	10 cc.	12 hours		—		None	None			
41	Male	12 "	Fair	3 "	Nose, Pharynx		10 "						½ in 2 hours	1 day	Trace	1st	day
42	Male	27 "	Good	2 "	Fauces		10 "	10 cc.	10 hours	M'brane spreading	+		None	None			
43	Male	13 "	Fair	2 "	Fauces		12 "					—	None	6 days			
44	Female..	22 "	Fair	3 "	Fauces		10 "	5* cc.	20 hours	M'brane spreading			½° in 2 hours	2 "			
45	Male	4 "	Good	3 "	Larynx, Fauces	Pneumonia, Laryngeal stenosis (intubation)	20 "							11 "			
46	Female..	20 "	Good	8 hours	Fauces		10 "						2 in 12 hours	2 "			
47	Male	4 "	Poor	3 days	Larynx, Fauces	Laryngeal stenosis	5* "	5* cc.	18 hours	Increas'd resp. lab'r			½ in 2 "	5 "	None	36 hrs.	after admission
48	Female..	3 "	Good	3 "	Nose, Pharynx	Suppression of urine for prev. 12 hrs.	5* "						1½° in 2 "			No	urine
49	Female..	11 "	Good	1 day	Fauces		5* "						1½ in 4 "	2 days			
50	Male	12 "	Good	24 hours	Fauces		10 "	5* cc.	24 hours	Rise of temp.			1½° in 2 "	2 "			

The antitoxin used was that put up by "Institut Pasteur," Paris, except for the last six cases, in which those 5 c.c. doses marked * were of serum prepared by Schering.
As far as possible all cases have been traced, and after the lapse of a month they have been questioned as to the ocurrence of any sequelæ.

PITAL—CIVIC INFECTIOUS DEPARTMENT.

Alfred T. Bazin, Resident Physician.

ure.	Albuminuria.				Complications and Sequelæ.			Bacteriological Diagnosis.	Result.	Mode of Death, with Time after Admission.
	Before.	After Antitoxin.								
Febrile Duration.	Amount.	Time of Appearance.	Amount.	Duration.	Character.	Time of Appearance.	Duration.			
days					None			B. Diphtheriæ.	Recovery	
"					None			"	"	
"	Slight		Increased	5 days	Paralysis of palate	39th day	4 days (?)	"	"	
"					None			"	"	
"	Thick		Thick					"	Death.	Uræmia—60 hours
days	Trace		Trace	1 day	Not traced			"	Recovery	
"	None		None		None			Streptococci	"	
"	None	(?)	Slight	To exit.	Paralysis of palate; paresis of pharynx and of extremities	40th day	2 months	B. Diphtheriæ	"	
"					None			Micrococci	"	
day			None		None			"	"	
days	Abundant		Thick	3 weeks.	Paralysis of palate; neuritic pains in arms	24th day	3 weeks	B. Diphtheriæ	"	
"			None		Erythema multiforme; arthritis; fever	12th day	3 days	"	"	
"			None		None			"	"	
"	Present	18 hrs. after admission	Thick	14 days	Paralysis of neck and extremities	30th day	3 months	"	"	
day			None		None			"	"	
days		1st specimen	Trace	2 days	None			"	"	
"		1st "	Trace	1 day	Paralysis of palate; dimness of vision, numbness of hands	30th day	5 weeks	"	"	
"			None		Paralysis of palate; disturbed ocular accommodation	29th day	5 weeks	"	"	
"			None		None			"	"	
"			None		None			Micrococci	"	
"			None		None			B. Diphtheria	"	
"			None		None			"	"	
		1st specimen	Thick		Laryngeal stenosis; intubation; tracheotomy	36 hrs. after admission	No relief	"	Death	8 hrs. after operation
days			None		None			"	Recovery	
"	Thick		Thick		Paralysis of palate; evidence of cardiac paral., with urinary suppression	17th day 18th day		"	Death	Uræmia—19th day
"			None		None			"	Recovery	
"			None		None			"	"	
½ "			None		None			"	"	
"		5th day	Slight	8 days	None			"	"	
"		1st specimen	Thick		Suppression of urine	4th day		"	Death	Uræmia—6th day
day	Trace		Slight	4 days	Paralysis of palate and paresis of limbs	33rd day	5 weeks	"	Recovery	
days		No specimen			Urticaria (general)	21st day	3 days	"	"	
"	None	4th day	Slight	10 days	None			"	"	
"			None		None			"	"	
"	Thick		Thick	Chronic	None			"	"	
None			None		None			"	"	
days			None		None			"	"	
"			None		Symmetrical urticaria	15th day	2 days	"	"	
"			None		None			"	"	
None			None		Not traced			"	"	
day	Trace	1st day	Thick	33 days	Paralysis of palate; dimness of vision and diplopia; paresis of pharynx and of extremities	28th day 30th day 35th day	1 month +	"	"	
None			None		None			"	"	
days			None		Paralysis of palate; diplopia; paresis of extremities	31st day	1 month +	"	"	
"			None		Paralysis of palate	15th day	4 days (?)	"	"	
4 "			None		Resp. labour—tracheotomy. Reinfection—intubation. Erythema multiforme—fever, arthritis	2nd day 26th day 34th day	7 days 2 days 4 days	"	Recovery	
"			None		Not traced			"	"	
"	None	36 hrs. after admission	Thick, blood	7 days	Not traced			"	"	
		No urine			Total suppression			"	Death	Uræmia—20 hours
days			None		None			Micrococci	Recovery	
"			None		Paralysis of ocular accommodation	21st day	1 month +	B. Diphtheriæ	"	

A CASE OF PRIMARY CANCER OF THE LIVER.[1]

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and

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The exceptional occurrence of a primary cancer of the liver with secondary involvement of the stomach may render the present case of some interest. While, however, we do not regard the condition as undoubtedly of hepatic origin, there seem nevertheless to be many points in favour of this view, while the growths found in the stomach and elsewhere seem to have been seeondary.

The clinical notes on the case may be briefly summarized as follows: N. McL., aged 60 years, presented himself for treatment at the Royal Victoria Hospital complaining of weakness, diarrhœa and pain in the abdomen, chiefly localized in the region of the liver and stomach.

He had been failing in health for six months, and during the last four months he was unable to work. The pain complained of, as well as the abdominal swelling, had troubled him for about three months.

His history gave no evidence of gastric disease, further than recurring attacks of gastritis, following on excess in alcohol, to which he had been addicted for many years.

His condition was that of one extremely emaciated and feeble, with rough, dry skin. The abdomen was distended. There was ascites and some diarrhœa. Examination in the region of the liver showed that organ enlarged. Its margin was felt about 2½ inches below the costal margin in the mammary line. It was hard and through the thin abdominal wall its surface was felt to be uneven. There was no jaundice.

No tumour was palpable in the stomach, abdomen, testicles nor rectum.

Œdema of lower extremities developed and the pulmonary signs indicated œdema of the lungs.

The patient died of asthenia after a few days sojourn in the hospital.

The *autopsy*, performed 8 hours after death, gave the following results in brief:

[1] Read before the Montreal Medico-Chirurgical Society, February 21, 1895.

Anatomical diagnosis—Primary cancer of liver; secondary cancer of stomach, periportal glands, pancreas, vena cava; chronic gastritis; chronic interstitial nephritis; hypertrophy of prostate and chronic cystitis; arterial sclerosis.

Necropsy (performed eight hours after death)—The body was that of a large-sized, much emaciated old man, presenting the usual signs of death; the abdomen markedly distended, the legs very œdematous.

Abdominal cavity—Panniculus adiposus and muscles much wasted. About 200 cc. of turbid brownish-red fluid free in the cavity. The visible intestines normal. The *omentum* presented atrophic fat. The *liver* descended in the mammary line 7 cm. below the costal margin. Apart from slight perisplenitis the *spleen* was normal.

The *suprarenals* had pale centres. The *kidneys* were firm, their capsules adherent, the surface dotted over with cysts and of a deep red colour, the cortex narrowed and presenting much evidence of interstitial new growth.

The *bladder* wall was much thickened and the organ dilated; there were numerous small diverticuli, but no signs of calculi. The *prostate* showed moderate hypertrophy of the lateral lobes. The *testicles* were small and soft.

Liver—Weight 4340 grms. The common duct at the duodenal orifice showed some slight swelling of the mucosa, while above it the canal was markedly dilated. The cystic duct was normal. On the upper surface of the liver there were some loose adhesions to the diaphragm. The organ itself was much enlarged, the surface reddened and dotted over with varying sized nodules of a yellowish or reddish-yellow colour, the largest being 5 cm. in diameter. For the most part they were soft, some almost semi-fluid, their surfaces regular and their outline more or less well defined. The usual cyanotic atrophy surrounded the most of them.

The organ was of firm consistence, and on incision it showed that almost the *entire parenchyma of the right lobe* was replaced by one large, firm, rounded mass of whitish colour, more reddish-yellow towards the periphery. The mass was 18 cm. in diameter, more or less regularly spherical on section, and was covered at no place by more than 2 cm. of liver tissue. Incision at various levels showed that the mass was almost everywhere of equal consistence, that it radiated from a central point where a small cyst existed and around which the tissue was dense. The periphery, on the other hand, was softer and presented a few hæmorrhages and some bile pigment. The surrounding liver cells were pressed into concentric layers, and even here presented secondary nodules of infiltration. In the left lobe were a number of smaller nodules similar in character to those described previously.

The *gall-bladder* was flattened, pushed to one side and contained a small quantity of dark green viscid bile. The cystic duct was free and there were no evidences here of neoplasm.

The periportal glands were much enlarged, softened and irregular in outline, their centres broken down.

The *vena cava* as it passed through the liver showed on its inner surface three small areas where the neoplasm, extending through the vessel coats, protruded into the lumen, thus giving rise to parietal thrombi. The Portal vein was free.

The *mesenteric glands* and thoracic duct were free from disease.

The *pancreas* small, soft, without evidences of cancerous infiltration; in the immediate vicinity of the tail was an enlarged cancerous gland in size equal to a walnut.

The *stomach* was distended with gas and contained about 50 cc. of greenish semi-fluid material in which various tests showed the absence of free hydrochloric acid.

The mucosa was thickened and reddened in patches. Along the lesser curvature and situated on the posterior wall 4 cm. from the cardiac opening was a round, elevated, well circumscribed nodule 3 cm. in diameter.

The mass was only moderately firm and on section showed but little density of structure. The serosa was only involved from within, the external surface present-

PRIMARY CANCER OF LIVER (Taken from a Section through the Centre of the Whole Organ).
[Photographed by Mr. D. Patrick.]

ing no sign of protuberance or adhesion. No nodules existed in the immediate vicinity in the wall, but 10 cm. from it were five or six firm, slightly elevated masses, apparently submucous, the largest measuring 1½ cm. in diameter.

The remaining portion of the alimentary tract was free from disease.

Thoracic cavity—In the lungs, beyond bilateral pleural adhesions, some slight hydrothorax and hypostatic pneumonia, there was but little worthy of note.

The *heart* showed milk spots upon its surface; its muscle was brownish in colour, the papillary muscles somewhat hypertrophied and fibroid. The coronary vessels atheromatous, as was also the first part of the aorta.

The organs of the neck presented merely the usual pathological conditions coincident with old age.

The brain—Dura adherent and somewhat thickened, the convolutions small; the basal vessels markedly atheromatous.

Microscopic examination of various portions of the liver neoplasms confirmed the macroscopic diagnosis. The epithelial cells were very large, of irregular shape and polygonal in outline. In some of the small secondary nodules the cells were seen in the portal vessels, but there was nowhere any indication of a true glandular type of growth.

The stomach growth presented superficial necrosis of the gland structure, great thickening and infiltration of epithelial cells in the submucosa and a very small fibrous stroma. The cells in some places filled blood vessels, in others lymph spaces.

No other new evidence was adduced from an examination of the remaining organs.

Conclusions—The conditions then found present a neoplasm in the stomach of small size, well circumscribed and circular in outline, with but little evidence of erosion and ulceration, while microscopically the constituent elements are chiefly cellular, with an inappreciable amount of fibroid change—that is to say, a growth apparently of very recent date. In the liver, on the other hand, the cancerous tumour is of enormous size, of markedly dense consistence from fibroid change, and on minute examination is seen to be made up of fibrillated masses out of all proportion to the insignificant amount of cellular growth—in other words, a neoplasm of long duration.

In endeavouring to make a pathological diagnosis as to the primary seat of the disease, the general appearances, though of great use as a guide, would not in themselves be sufficient as evidence, for it is everywhere recognized that growths in the stomach may for a long time remain small and apparently quiescent, while the secondary foci grow to enormous proportions; yet one would expect in such cases that there would be evidence either of chronic ulceration or of fibroid change, but neither of these conditions is manifest in the present instance.

Again the neoplasm in the stomach is circular, slightly elevated, regular in outline and well circumscribed, thus corresponding in general characteristics to the description given by Grawitz among the rare cases of secondary cancer of the stomach formed by metastases.

Should insistence be laid on this organ as the primary seat of the neoplasm one could surely render cautiously in future a diagnosis of primary cancer of the liver when the original focus can for so long a

time retain characters incident only to the very early conditions of growth, for it might well be argued that on the same basis such growths in the stomach might remain still smaller, even invisible to the unaided eye, while the secondary foci grow to enormous extent. Considering, on the other hand, that the disease originated in the liver, we have in favour of the view the evident duration of the growth as seen from its size and minute characters.

From the enormous variations in type of cancer cells it is not always possible to differentiate the original seat by microscopic examination, and our present case would come under such a category.

There are three chief modes whereby secondary cancers of the stomach may arise, firstly, by direct extension from neighbouring organs, such as the pancreas, liver, glands and œsophagus, or by the newly formed lymphatics in adhesions between these organs; secondly, by implantation from the œsophagus, such as might occur from an ulcerating carcinoma of the tongue. In these cases, which are rare, the cancer cells drop down, or are carried down into the stomach, and becoming fixed in their new situation they proliferate and form secondary tumours. It is in the same way, too, that secondary peritoneal cancers are so frequently formed in Douglas' pouch by the gravitation of the malignant cells from the serous coats of the stomach or the liver. Thirdly, secondary cancers of the stomach may form by hæmatogenous metastases; these last are extremely rare and have been put on record by Grawitz. In such cases the tumours are well circumscribed, circular and regular in outline.

In addition should be mentioned the possibility of cancer cells travelling against the stream of the circulation, thus moving along the portal vein and mesenteric vessels and lymphaties, and thus setting up a secondary growth in the stomach, just as occurs in involvement of the left supra clavicular glands when cancer cells travel along the course of the thoracic duct.

REINFECTION IN DIPHTHERIA.

By Alfred T. Bazin, M.D.
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The case is of special interest, presenting as it does an instance of the therapeutic power of diphtheria antitoxin; an early reinfection of the disease, the patient having received no immunity either from the primary attack or from a large dose of antitoxin, and one of the rare forms of erythema as a sequela to the antitoxin.

The patient, a well-nourished boy, aged four years, was admitted to the hospital December 1st at 11 a.m., with alarming laryngeal obstructive dyspnœa and well marked cyanosis.

History—On November 28th, three days previous to admission, the patient became feverish and restless, with a frequent croupy cough. A physician was called whose examination discovered signs of consolidation in the right lung (scapular and axillary regions), covering an area 3 x 4 inches. The pharynx was apparently normal. On November 30th the area of consolidation was the same, the cough more frequent and more harsh. A small patch of pseudo-membrane was now seen on the tonsil. A double dose of antitoxin (20 c.c.) was immediately given.

In the late afternoon of the same day the patient coughed up small pieces of membrane and during the night had three or four attacks of dyspnœa, which were relieved by [illegible] us coughing up membrane.

In the morning the dyspnœa was continuous and the respiratory labour was very great. The condition of the child was as follows: Face livid, lips blue, respirations rapid (36), stridorous and very laboured, the sternum and costal cartilages receding with each inspirating effort; cough is tight and harsh; pulse rapid (168), weak and imperceptible during inspiration. Cervical glands are somewhat enlarged, throat is reddened, and tonsils swollen and covered with thin membrane.

Intubation was performed, but no relief was given; the tube was withdrawn and in the fit of coughing which ensued the child ejected a tubular coat of membrane about $2\frac{1}{2}$ inches long. After this the labour was greatly lessened and the cyanosis disappeared.

Examination of the lungs verified the condition previously stated, with, in addition, moist rales in both bases. Temperature 99°. Urine free from albumen.

Patient was put under a steam tent, jacket poultices applied and was given hydrarg. bichlor. gr. $\frac{1}{60}$ every two hours.

During the night the child coughed frequently, and at times the breathing was rapid and laboured, but there was no cyanosis.

Dec. 2nd, 8 a.m.—The patient had a severe attack of dyspnœa and cyanosis, which developed with great rapidity. The laryngeal tube was again introduced, but without effect, and tracheotomy was performed. At the higher incision the trachea was found blocked with membrane which could not be removed, so the lower incision was used. Here also false membrane lined the trachea. Complete and permanent relief from the dyspnœa resulted from the operation, but the lips and finger-nails still had a dusky hue.

Dec. 3rd.—Child takes nourishment well and rests easily. Temperature 102½°, pulse bounding and full; lungs the same as before.

Dec. 6th—The temperature has been gradually falling and is now 100°; the child is bright, while the lungs are clearing rapidly. Some air passes through the larynx when the tube is blocked.

Dec. 7th—the lungs seem perfectly clear; pulse 100 to 120, strong and full; temperature 100°, and this is due to slight suppuration about the wound.

Dec. 12th—Tracheotomy tube removed. Larynx patent; phonation has partially recovered.

Dec. 19th—Patient permitted to get up.

Dec. 28th—Since last note the patient has been rapidly gaining in weight and strength, voice almost normal, wound almost completely covered. The temperature has been normal for sixteen days. To-day the child was up as usual, temperature was normal. In the afternoon the voice became husky and there was a frequent croupy cough. Towards evening these symptoms increased and there was some respiratory labour. Placed under a steam tent.

Dec. 29th—This morning the child coughed up several pieces of membrane. Temperature 99⅘°. Given a single dose of antitoxin. Respiratory labour increased rapidly and at 4 p.m. intubation was performed and another double dose of antitoxin given. The tube afforded some relief, but there was still recession of the soft parts. 8 p.m., became cyanosed; tube removed, but had to be replaced in half an hour. This was again required at midnight.

Dec. 30th, 4 a.m.—Again cyanosed. Tube removed and child was easy. 8 a.m.—Tube again inserted, this time giving complete relief. Child slept soundly. Nourished by enemata. Highest temperature was 103⅖°, at noon.

Dec. 31st—Had a good night; in early part disturbed by coughing, when much mucous and secretion would be expelled. This morning

there is very little coughing. The tube was removed and was not again required.

Jan. 1st—Temperature normal Child easy.

Jan. 3rd—To-day the child is covered with an urticarial rash which in a few hours developed into the circinate form of erythema multiform. Temperature 102⅕°; severe pains in knees.

Jan. 5th—Rash faded. Temperature 100°.

Jan. 7th—Temperature is again normal and there are no remains of the erythema.

Jan. 14th—Child discharged in good condition. Voice has returned, but is low-toned and harsh.

In both instances the bacteriological diagnosis was established at the Pathological Laboratory of the Montreal General Hospital.

NOTES ON A CASE OF STREPTOCOCCUS SEPTICÆMIA.

By A. A. Robertson, B.A., M.D.
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In presenting this report of a case of streptococcus infection the following main features have been kept in view, as rendering the notes worthy of publication.

1. A markedly virulent streptococcus septicæmia associated with a scald on the foot apart from any abrasion of the skin.

2. The presence of a primary abscess inducing general bacterial infection without the development of metastases.

While cases of general infection from the presence of streptococci cannot be considered as uncommon, yet such a course as was manifested in the subjoined case, is of both clinical and pathological interest, and affords additional proof of the multifarious effects of the invasion of the streptococci into the system.

Abstract from case report.

C. C., cook, aged 26, was admitted to the Royal Victoria Hospital on 25th Jan., 1896, complaining of weakness and loss of appetite.

On Sunday, 19th January, she was taken ill with headache and severe pains throughout the body. There was no definite rigor, but on this and subsequent days she frequently felt chilly. These symptoms continued during the week, the headache being worse on the fifth night, but not sufficient to prevent her from performing some of her daily duties. On Thursday morning she noticed pain and redness on the dorsum of the right foot. For this, she said after admission, she knew no cause, but from her mistress it was learned that she had been scalded on this foot some time before. During the week she had been able to take but very little nourishment. There had been no abdominal pain nor was there fixed pain in any of the joints. Cough had been very slight.

She was born in Scotland, but has been living in Canada for five years. She does not remember having had the usual diseases of childhood. Four years ago she had "congestion of the lungs" which confined her to bed for three or four weeks: another attack supervened in the following year. Two years ago she had quinsy. There is no history of rheumatism, but her physician outside had noted an old cardiac lesion.

In the family history there is tuberculosis.

On examination the patient was found to be well nourished, the

mucous membranes of good colour, and the cheeks flushed. There was a slight icteroid hue over the face. Her mind was clear, but she seemed dull, and had difficulty in recalling accurately past events. She complained of little beyond weakness.

On the dorsum of the right foot and extending up on to the anterior surface of the leg there was a strip of inflammatory redness about four inches long. About the middle of this strip, over the tendon of the great toe there was a raised area about the size of a bean which gave evidence of fluctuation.

On admission the temperature was 104°, pulse 110, respirations 32.

Circulatory System.—The pulse was small, rapid (110) and of rather low tension. *Heart.*—The apex beat and area of cardiac dulness was slightly displaced to the left. At the apex the first sound was diminished in intensity and accompanied by a soft blowing systolic murmur, well transmitted into the axilla. At the pulmonary cartilage, there was a systolic murmur louder and rougher than that at the apex, and the second sound was accentuated. This murmur seemed to be transmitted down the sternum but not into the vessels of the neck.

The Respiratory System was normal.

Digestive System.—The tongue was dry and brown. In the mouth and pharynx the mucous membrane was red and injected; the tonsils were not swollen.

The abdomen was not distended, and there were no rose spots. There was neither pain nor tenderness in the abdomen. The area of splenic dulness was slightly increased forward, but the organ was not palpable. Liver normal.

Genito-Urinary System.—The urine was high coloured, clear, with a slightly flocculent sediment; urea, 5 grains to the ounce; albumen, 0.25 per cent. In the sediment there were coarsely granular casts, some with pus cells attached; also some free pus cells.

There was no vaginal discharge or inflammation; nothing abnormal was found on vaginal examination.

Diary—28th Jan. Since admission temperature has been high and remittent. On evening of 26th, 105·6°; on evening of 27th, 104·4°; to-day not quite so high, but her general condition is worse. Pulse and respirations are more rapid. There is distinct pale cyanosis, but almost no cough. Cultures from blood of the finger were made to-day but remained sterile.

30th Jan. Condition still worse; evening temperature 104°; pulse 124; respirations 40. Delirious, noisy and trying to get out of bed, at other times quieter but muttering. Cyanosis is increasing, respirations laboured. There are diminished resonance, and diminished

breath sounds on the right side behind, below the angle of the scapula, but almost no cough.

31st Jan. General condition about the same. Dulness in chest somewhat higher; over this area breath sounds are almost absent. On left side behind, breath sounds are roughened, and accompanied by fine moist sounds. In front the breath sounds are rough. No difference has been detected in cardiac sounds since admission beyond increased rapidity.

The inflamed area on the right foot was punctured and about a fluid drachm of thick greenish pus was obtained. From this cultures were made which yielded a pure growth of streptococci. Cultures from the blood were again made and these again remained sterile.

2nd Feb. Cyanosis has increased. Constantly delirious, and there is almost constant fine tremor of hands and mouth.

Two incisions were made in the foot and a quantity of pus withdrawn. The cavity was packed with iodoform gauze.

Blood slides made to-day show marked leucocytosis and increase of the fibrin net. The neutrophile granules, as stained by Ehrlich's triple dye, were unusually prominent.

Cardiac impulse best felt in the fourth interspace, five inches from middle line. Heart sounds in lower part of cardiac area are indistinct, heart very rapid (140). Dulness in right axilla and right base, to less extent in left base. Breath sounds in front are exaggerated; behind, the breath sounds are diminished in the right base and to a less extent in the left. At the lower angle of the left scapula there is a small area of almost blowing breathing. Almost no cough. Later in the day a friction rub was heard in the right axilla.

Urine is passed involuntarily, of same character as before mentioned.

3rd Feb. Patient died this morning at 6.15 a.m.

Diagnosis—The differential diagnosis concerned mainly three conditions, viz.: Typhoid fever, miliary tuberculosis, and septicæmia.

Typhoid fever was thought of as a possible cause at first, but later this was excluded as the characteristic signs of that disease did not develop, and the cyanosis, delirium, extremely dry tongue, rapid pulse and respirations, precluded the probability of such a condition alone. A secondary infection at so early a stage of the disease likewise seemed improbable.

No focus could be discovered as a starting point for miliary tuberculosis, and at the time of admission and all through the disease pulmonary involvment was a minor symptom.

A *diagnosis* therefore of *septic infection* was made, and with the history of injury to the foot and the subsequent development of the

abscess with streptococci, the conclusion seemed reasonable. The old cardiac lesion would have possibly become malignant and the diagnosis was so made. As complications to this general condition there were broncho-pneumonia, pleurisy, pericarditis and acute parenchymatous nephritis.

Abstract from report of autopsy, performed by Dr. Martin, five and a half hours after death.

The body was that of a well nourished woman with the usual signs of death. On the instep of the right leg there were two vertical incisions at the base of which were some slight sloughs. There was slight œdema of the legs.

The abdominal cavity on general inspection presented no pathological conditions beyond an abnormal position of the transverse colon.

The *spleen* weighed 320 grms. was much enlarged; its capsule thin and tense and the organ was diffluent on section.

The *kidneys* were large, congested, and manifested distinct parenchymatous nephritis. The pelvis was reddened and presented here and there submucous hæmorrhages.

The *pelvic organs* presented no macroscopic lesions.

The *stomach* was much congested and distended with gas.

The *ileum* presented marked emphysema of its wall, but there was otherwise no abnormality in the whole intestinal tract.

The *liver* was small, soft and fairly friable, the lobules somewhat indistinct.

The *pancreas* normal.

Thorax.—In the left pleural cavity was a small quantity of clear fluid and generalized recent adhesions, the right side was free. The *lungs* themselves, beyond acute congestion and some bronchitis with œdema, showed no evidence of disease.

The *pericardium* contained a small amount of turbid serum with flocculi of lymph, and presented over the right auricular surface recent inflammatory exudate.

The *heart* weighed 270 grms. Its valvular orifices were of normal size, and the left auricular and ventricular walls were somewhat thickened. Along the edges of the mitral valves were numerous old nodular thickenings, the muscle itself was of good colour, and the coronary vessels were normal. On none of the valves was there any evidence of acute lesions.

The *neck organs*. On the *larynx* there was some recent suppurative perichondritis which had remained well localized.

The *brain* was normal.

Cultures upon glycerine agar and broth were made from the differ-

ent organs and tissues with the following results: *streptococci* were found in pure culture in the spleen, liver and blood of the vena cava. Streptococci and staphylococci in mixed cultures were obtained from the left lung and kidneys. From the *suppurative perichondritis* a pure growth of *staphylococcus pyogenes aureus* was obtained.

Microscopic examination of the tissues showed mainly, great congestion, parenchymatous degeneration and the presence of the streptococci in the vessels, and apart from any signs of abscess formation.

A CASE OF SYPHILIS OF THE LIVER.[1]

By W. F. Hamilton, M.D.

Assistant Demonstrator of Medicine, McGill University; Assistant Physician, Royal Victoria Hospital.

Mrs. C., æt. 62 years, began to complain of failing health and strength in May of 1895. Her appetite was poor, she was losing flesh, and she felt languid and irritable. About the 1st of July a small growth, red and about the size of a pea, was removed from her right cheek. The scar healed without return of the growth.

On 31st of July, without previous pain or nausea, vomiting of blood began. During that night and the following day mouthfuls of blood were coming up at intervals.

On the 3rd of August, as well as on the 4th, slight evidence of continued hæmorrhage was manifest. Black stools were observed at this time, and during this attack she fainted once or twice.

Respecting her personal history it may be said that she was from her early days a beer drinker. She had always enjoyed good health, her only illness being at the period of the termination of her pregnancies, five out of seven of which, she reported, did not advance to full term, and the offspring of those which did come to full term died in infancy. There was no other point in her history suggesting syphilis. In fact, questions concerning rash, sore throat, falling of hair, etc., were all answered in the negative. She has never been subject to vomiting or affected with hæmorrhoids.

The family history revealed nothing favouring tuberculosis or malignant disease.

When first seen on August 1, 1895, the patient showed emaciation with anæmia; the temperature afebrile; no jaundice; no œdema of tissues was observed; no signs of scars upon ankles nor forehead. On examination the lungs were negative. The heart showed but slight departure from the normal in an apical systolic murmur.

The abdomen, symmetrically distended, presented no enlarged veins, no palpable tumour, no tenderness on pressure and no signs of fluid. The liver dulness was but 2½ inches, not palpable; the spleen was not perceptibly enlarged.

Urine gave a slight trace of albumen and a few pus cells.

The course of the case was favourable; no recurrence of hæmor-

[1] Read before the Montreal Medico-Chirurgical Society, February 7, 1896.

rhage. She left the hospital on the 19th of August. Diagnosis, atrophic cirrhosis of liver.

About one month after (Sept. 17, 1895) she was again seen, and on this occasion she gave an account of another attack of hæmatemesis, coming on after a day of unusual exertion. The abdomen was larger than when last examined and presented signs of fluid, but no palpable tumour. The diagnosis remained as above stated.

The patient was seen from time to time and a gradual increase in abdominal measurement was observed, but it was not until the 20th of November that a palpable tender epigastric mass was detected on "dipping" into the abdomen at this part.

By this time the veins on the surface were full, the umbilicus protruded, the urine scanty and high coloured.

On the 24th of November the abdomen was tapped about three inches below the umbilicus on the median line and thirteen pints of clear, straw-coloured fluid withdrawn. This afforded one a good chance to palpate the abdomen, and the resisting body above referred to felt in all respects like the left lobe of the liver greatly enlarged. It was free from nodules and its edge clearly defined, and its lower margin could be traced toward the right where the right lobe retracted beneath the costal margin. The pain complained of was variable in situation, sometimes in hepatic region, sometimes in splenic region.

Without entering further into details, it may be said the abdomen refilled and was emptied on four subsequent occasions; at each time from ten to thirteen pints of clear fluid were withdrawn. On each occasion opportunity for careful examination of the abdomen was improved and each time one became more and more fully convinced of the fact that here was an enlarged hypertrophied left lobe and an atrophied right lobe. The spleen was very palpable.

Syphilitic appearances and history were lacking, and as a cause for atrophic cirrhosis had been active for many years, while the clinical features of the case fully corresponded with those of that disease, the diagnosis was thus made.

It is worthy of note, however, that in view of the growth on the face, though its character was not established, and the comparatively recent and rapid enlargement of the left lobe, malignant disease was suggested. For such a condition we had no further evidence.

The patient died on the 23rd of January, 1896, nine months after she began to complain of failing health and six months after the first attack of hæmatemesis.

The autopsy revealed *diffuse gummatous hepatitis.*

It is well known that in syphilitic disease the liver is the most

frequently involved of internal organs. Of 27 cases of syphilis examined by Moxon 22 showed signs of this disease. As points of special interest about this case may be mentioned the *diagnosis and treatment*, along with which may be considered, and with scarcely less interest, (1) the occurrence of ascites, (2) the enlargement of the left lobe, and (3) the manifestation of the disease in the liver only.

The correct diagnosis of such a disease in this case, with data, seems impossible. Perhaps we did not give due consideration to the history of those five cases of premature births and the two deaths in early infancy. But provided we established our diagnosis of syphilis and treated the case with full doses of anti-syphilitic remedies, in view of the hepatic condition found, what could we have thereby achieved? Upon this point opinions differ.

The best results of anti-syphilitic treatment have been obtained in cases of circumscribed or local syphilitic processes, while failure has not infrequently attended those cases where the process is diffuse. Indeed, some go so far as to regard the results as complicating rather than relieving the condition. Strumpell expresses this idea and suggests that the anti-syphilitic measures hasten the fibrous cicatrizing process in and about the liver tissue.

Perhaps this question is one upon which finally there must remain wide differences of opinion, but so far as I have observed it is rarely discussed, and if any member has any information touching this point it will be gratefully received.

The presence of ascites, though spoken of as rare in cases of syphilis of the liver, need scarcely be regarded as cause for surprise, since many cases presenting signs of such disease die before the disease is very far advanced, either from other causes or from the progress of the same disease in other or more vital parts, the blood vessels or brain for example. Moreover, such a condition as that presented by our case is practically that of atrophic alcoholic cirrhosis. The portal obstruction may occur, however, by gummous growths arising in the portal fissure and exerting pressure, as pointed out by Deakin, of Bengal, several years ago. This case of Deakin's presents several points of similarity with the present case, viz.: Greatly enlarged left lobe; hæmatemesis; recurring ascites; intestinal hæmorrhage.

The left lobe was found greatly enlarged. Such enlargement is due in part, no doubt, to the presence of syphilitic disease in the lobe in a recent state, but since the right lobe shows marked fibrous changes, the question of compensatory hypertrophy of this lobe is suggested. Such a condition is not infrequently found. In cases where the functional activity of one lobe has been interfered with, the other has

been found much increased in size. Experimental removal of large portions of the liver of healthy animals has been followed by remarkable hypertrophy of the remaining portion. It is held that the liver possesses the power of recreation of cellular elements in a remarkable degree, equalled by no other organ of the body.

From the autopsy it appears that the liver is the only organ presenting evidence of syphilitic disease. There were noted, however, signs of chronic pachymeningitis over a limited area. In the vagina a scar was found near the cervix uteri on the left side. Neither of these is distinctive of syphilis. Such a negative finding is rather contrary to the teaching of Moxon in his article on syphilitic lesions in Guy's Hospital Reports. He says : " When one finds syphilomatous formation in one organ one does not fail to find it in other organs, if not in the characteristic gummous form, at least in the form of circumscribed fibrous changes which are equivalent thereto."

A TRIP AMONGST THE GYNÆCOLOGISTS OF NEW YORK.

By L. C. Prevost M.D., Ottawa.

(Concluded.)

I am desirous to speak of Dr. Kelsey, whom you all know by reputation. He is the secretary of the Post-Graduate School and one of the professors of that institution. His clinics are exceedingly interesting; he speaks with authority and conveys immediate conviction in the minds of his auditors. Kelsey is one of the warmest partisans of the clamp and cautery in the surgical treatment of hæmorrhoids. As soon as the patient is totally under ether he introduces his two index fingers into the rectum and dilates forcibly; the piles at once protrude externally. He applies the clamp, cuts off the top part of the hæmorrhoid and roasts the remainder down to the clamp. Care must be taken to leave intervals of sound tissue between each pile to avoid stricture of the rectum. I was a little surprised to hear Kelsey repudiating dilatation in fissure of the anus. He simply in these cases splits the bottom of the fissure with a long, narrow, blunt-pointed bistoury, snips off the edges of the incision on each side, and then makes a moderate dilatation with a dilator. No gauze, no dressing. That simple operation, he says, can be done in the surgeon's office after a slight application of cocaine.

The most remarkable operation I saw him do was a ventro-fixation of the large intestine for a case of prolapsus ani in a man suffering from locomotor ataxia. The patient was etherized, the anus dilated and the mucous membrane of the rectum seized high up with a forceps and brought down in an exaggerated prolapse. Three inches at least of the mucosa was hanging outside. He then applied the thermo-cautery, but attention must be paid to the peritoneum which lines the bowel *inferiorly*. I say inferiorly because, as you understand, the gut has been invaginated by the traction of the forceps. Four stripes are burnt with the thermo-cautery from the margin of the anus to the apex of the invaginated mucosa, one anteriorly, one posteriorly and one on each side, furrowing more deeply superiorly than at the extremity. He then reduces the gut and again cauterizes the margin of the anus above and laterally. This treatment is all that is necessary for ordinary cases of prolapse, but here it would be insufficient, and he will make an enterorrhaphy. On an imaginary line from the umbilicus to the anterior superior process of the ilium he

makes a vertical incision in the left groin and rapidly divides the tissues as in ordinary cœliotomy. He cuts the peritoneum with scissors above and below. The finger introduced into the abdominal cavity recognizes the large intestine by its longitudinal band. He seizes it near the sigmoid flexure, pulls and winds it out, as it were, until the gut resists the traction. He then sutures it to the lips of the abdominal incision in the following manner: Four strands of catgut carry at each extremity a small half-curved needle. One needle is introduced superficially into the bowel and then through the abdominal wall, including *all* its layers. The needle of the other extremity does the same on the other lip of the incision. The four sutures applied are not tied immediately; the abdominal incision is united first by three tiers of sutures, one on the peritoneum, the other one on the aponeurosis and the last on the skin. Then only are the four catgut sutures pulled and tied. Ordinary dressing with gauze. The abdominal sutures are removed on the tenth day. Kelsey advises to keep the bowels constipated for ten or twelve days and then give an enema.

But let us return to the German Hospital; there is there a case that will interest you. It is a woman, æt. 40, whose husband died several years ago. She is examined; something suspicious protrudes through the os.

"Madam, would you not be pregnant, by chance?" "Never in the world," she answers naturally. But the soft cervix, the uterus globulous and increased in size, the character of the pains raise Dr. Krug's suspicions. He makes up his mind to wait and the patient is put to bed.

The same night the pains increased and a fœtus of four months was expelled. The placenta is still in the uterus and she is brought into the operating room to have it extracted.

A magnificent man is Dr. Krug; tall, handsome, of a brown complexion, distinguished looking, he wears on his left cheek the cicatrix of a gash which mightily looks like a souvenir brought back from Heidelberg or some other German university, indelible decoration attesting his pride and courage. I suppose that in his younger days he very skilfully could handle a rapier, but what I can affirm is that he seems quite at home with a curette or bistoury in his hand. Our widow of the fœtus conceived by spontaneous generation could certainly not confide herself to a cleverer surgeon.

The patient is anæsthetized, the cervix grasped with a vulsellum, the placenta extracted with the fingers, and then a sharp curette of a

monstrous size is carried everywhere in the uterine cavity, which is afterwards packed with iodoform gauze.

Next a patient is brought in; she has a fluctuating abdominal tumour; it is a cyst or some other fluid collection. The patient is placed in the Trendelenberg position. The operater standing on the left traces a long incision from the pubis upwards; the recti are set apart with the handle of the knife and the peritoneum opened below and above with the scissors. The finger explores the cavity and suddenly a stream of fetid pus flows out of the abdomen. It was a large abscess formed in the anterior cul-de-sac and separated by adhesions from the peritoneal cavity. Tubes and ovaries are normal. There was no mention made of the appendix, although the purulent collection seemed to be developed especially on the right side. The peritoneum being carefully protected by sterilized pads, the sac was totally evacuated and long parallel strips of iodoform gauze packed down to the bottom of the cavity, their external extremities folded loosely over the abdominal incision and covered with simple sterilized gauze. Two stitches only were placed at the superior part of the incision. The packing will remain *in situ* for forty-eight hours and then be replaced by a fresh dressing. Within ten or twelve days the cavity will heal up by granulation, and then the rest of the abdominal incision will be sutured, with local anæsthesia.

Third patient, inoperable cancer of the cervix; has been thoroughly curetted last year. Patient has always been well until lately. The vagina is carefully scrubbed with soap and brush and the sharp curette is thoroughly carried over the neoplasm, and then a deep cauterization is made in every corner with the cautery. Irrigation with sterilized water and vaginal packing with iodoform gauze.

I must confess that I like the Germans. I had the advantage of being acquainted with two others who enjoy a widespread reputation in the gynæcological world; you must have heard of them. I mean Dr. Edebohls, gynæcologist to St. Francis Hospital, and Hermann Boldt, gynæcologist to the German Poliklinik and to St. Mark's Hospital. Both are professors at the Post-Graduate and are highly considered. I heard Edebohls, in one of his clinical lectures upon the diagnosis of uterine diseases, give to his hearers practical advice of indisputable utility, but which infers that those physicians possess a *tactus eruditus* which is not met with every day. Judge for yourselves. A patient is brought in, she complains of laborious digestion, nervousness and pains in the abdominal and lumbar regions. Examination shows that she is affected with salpingitis complicated with a movable kidney.

The professor dwells upon the fact that, he has often met with this singular association of salpingitis and displaced kidney. Besides, with those patients, he has many times observed without trying to explain it, a sensitiveness to the touch of the vermiform appendix. These women are nearly always dyspeptic and whatever may be the treatment instituted to relieve the tubal or uterine disorders, the pain, dyspepsia and neurasthenia persist as long as the kidney has not been fixed by nephrorrhaphy. It is therefore of the greatest importance to be able to recognize by examination the existence of these various pathological conditions of these three organs: the tubes, the appendix and the kidney. The means of exploring are simple: The patient must be standing up. Apply the right hand in front, avoiding the rigidity of the recti and the left behind, taking the same precautions with regard to the quadratus lumborum. By combined and careful pressure, the position of the kidney is very easily ascertained.

So far, in fact, the examination offers nothing extraordinary, but here is what seems to me a little more complicated. To begin with, Edebohls teaches his pupils to make all gynæcological examination without speculum, hysterometer or any other instruments; digital examination generally suffices. The finger introduced in the vagina will feel the appendix on the right side of the pelvis, pressure on that organ will evince pain. And directing the exploratory finger towards the tube and especially if rectal and vaginal examination combined is used; as for instances, the medius in the rectum and the index in the vagina, then it is quite easy to discover the tube which is felt like a horizontal cord stretched across the pelvis in the direction of the uterus, whereas the round ligaments proceed diagonally downwards. Moreover, in certain cases, as in the case of the woman exhibited just now, it is possible to ascertain that the tube is tender in a certain portion of its course only, that is near its insertion to the uterus. Gentlemen, I must declare that this refined delicacy of the digital pulp dazzles me and leaves me somewhat sceptical and I ardently aspire to the day when a greater experience will gratify me also with a true eye at the end of my finger. I furthermore humbly confess that so far, in the course of a laparotomy, with the hand plunged right in the abdominal cavity and without any interposition of vaginal walls between the fingers and the appendages I very often have had all the trouble in the world to differentiate the fallopian tubes from the surrounding tissues without the help of my eyes. However, I doubt, but do not deny. Long since I came to the determination never to deny anything *a priori;* we meet every day with too many astounding, although indisputable, assertions in this end of the century.

Dr. Edebohls shows us another patient on whom we might at first feel tempted to diagnose an anteflexion. True anteflexion is very rare, according to the professor, who in spite of his large practice assures us that he hardly meets more than ten or twelve cases within a year. In this case the vagina is very narrow. The cervix is œdematous and increased in size; meeting the rigid posterior wall, it turns forwards towards the axis of the vagina. In spite of this curve of the vagina the fundus of the uterus remains above, whereas in true anteflexion both the fundus and the os tincæ are situated on a same level. At last a woman is brought in, who since last February had two laparotomies performed on her, one for an ovarian cyst which was removed and the other for an oôphorectomy on the other side. Nevertheless, although both her ovaries are absent, according to her statement, that woman is four months pregnant. Dr. Edebohls sends her back to the surgeon who performed the operations to give him a chance to throw some light upon this mystery.

Dr. Boldt belongs to the class of brilliant and rapid operators. He does not handle the bistoury, he flourishes it. He carves living flesh with the same rashness as the student dissects, but I do not believe that he commits many errors at that; his self-possession is equal to his audacity. He is at home in a woman's abdomen, where he sinks his arms up to his shoulders. I saw him perform trachelorrhaphy—a snip of the scissors to the right of the angles, another to the left; removal of the triangular piece thus circumscribed and including the cicatrical plug; two or three sutures—and here it is. He does also perineorrhaphy in a very original manner. A volsellum is fixed at the top of the rectocele, another one below the median line on the posterior wall, half an inch higher than the union of the skin and the vaginal mucosa. A third volsellum is applied near the caruncule on one side. The tissues are put on the stretch, and with a bistoury he traces the base and two sides of a triangle. With his fingers he raises and tears off the mucosa. The small lateral triangle thus pared is immediately sutured with a continuous catgut suture. The same thing is done on the other side. Care is taken to leave between the two denuded triangles a narrow band of sound tissue from the superior to the inferior vulsella. After the sides have been sutured he snips the posterior commissure on the median line at the union of the skin and the vaginal mucous membrane and thrusts his scissors under the latter, which he detaches on all sides in opening the blades, such as it is done in Tait's operation. The mucous membrane is not removed, and he makes two or three sweeping sutures imbedded in the tissues with a long curved needle.

Here is now a woman whose history is not given by the professor, to my great regret. She carries in her abdomen a large tumour, the character and exact situation of which remain doubtful. However, it seems have close relation with the uterus, because pressure on the top of the tumour is directly transmitted to the finger applied on the cervix. Dr. Boldt makes an exploratory puncture with the hypodermic syringe through the vagina and withdraws some sanguinolent serosity, which causes him to suspect the malignant nature of the neoplasm. He carefully disinfects the vaginal cavity and applies a tampon of iodoform gauze. The patient is put in the Trendelenberg position. The operator, standing on the left, makes from the pubis right up to the umbilicus a large and rapid incision. With a single stroke, a real sabre-cut, he slices all the tissues down to the deep aponeurosis, which is divided with the scissors. The peritoneum is opened between two forceps and the scissors slit it above and below Several ounces of serosity tinged with blood run out of the abdominal cavity and are absorbed immediately with sterilized pads. The tumour appears immense, of a bluish colour, lobulated and containing some fluid in the superior lobules. The peritoneum is thickened, showing signs of old inflammation. Without paying much attention to the bowels, which tend to protrude, the surgeon plunges his hand and then the arm up to the elbow under the neoplasm, which he forcibly causes to jump out of the abdomen. The tumour seems to have taken its origin in the left ovary, but it is also adherent to the posterior part of the uterus. He rapidly separates the adhesions with his fingers. The tumour very soon hangs down, out of the incision on the left side, and finally comes off by its own weight and falls in the recipient held out by the assistant to receive it. The operator then calls for dry sterilized towels, sinks one of them in the abdominal cavity, where it disappears completely, holding up the intestines and omentum. Another one is put down below. He grasps the uterus, examines, manipulates, feels it and pulls it above, to the right, to the left. The right appendages are exposed; a clamp is placed on the superior part of the broad ligament and a catgut ligature applied outside of it. The ligament is then divided between the clamp and the ligature. A transverse incision is carried from side to side on the anterior part of the uterus; the bladder is detached. A catgut ligature is then applied deeply on the same side with a needle, taking the tissues with a double thrust, so as to cause the ligature to make a complete loop, which is tied with all the strength of his muscular arms. He now explores the side, looks for the pulsation of the uterine artery and surrounds it also with a complete loop of catgut

made by a double puncture of the needle. He then bursts the cul-de-sac in front and behind and penetrates into the vagina. Two tight ligatures are applied on each side close to the uterus and the latter is cut off and extirpated. Then the Trendelenberg rack is lowered. The towels are removed from the abdomen, and without minding the the protruding bowels, six or seven pitchersful of sterilized water are poured into the abdominal cavity. The operator with his hands washes and kneads the whole contents of the abdomen, peritoneum, bowels, etc., and after placing the intestines in good order and recovering them with the omentum, a Mikulicz dressing with iodoform gauze is applied. The abdominal walls are sutured, two or three stitches remaining unknotted at the inferior part. In two or three days the gauze will be removed and the last sutures tied up. The whole operation hardly lasted more than forty minutes.

I saw another abdominal hysterectomy done at the Post-Graduate by Dr. Carpenter, also professor in that institution. It was for a fibroid tumour of the uterus. The operation was begun by the vagina. The anterior and posterior cul-de-sac were detached to a certain extent. The surgeon looks for the pulsation of the uterine arteries, but does not feel it. He therefore immediately proceeds to open the abdomen. Trendelenberg position, incision from pubis to umbilicus. The tumour appears, voluminous, adherent and jammed deeply in the pelvis. A clamp is applied outside of the left appendages, a silk-worm ligature thrown on the superior part of the broad ligament and the latter divided. The tumour, grasped by a large vulsellum, is pulled upwards, and another tumour appears in the field of operation, growing out of the inferior or posterior part of the principal tumour. A clamp is applied upon the uterine artery. The bladder is separated by snips of the scissors. An assistant then introduces his finger through the vagina in the anterior cul-de-sac, and the operator divides the tissues which hold still to the anterior part of the uterus. The adhesions are then separated on the left side, the blood vessels tied with catgut, the posterior cul-de-sac opened and the uterus extirpated. The peritoneo-vaginal cuts are united in front and behind, parallel bands of iodoform gauze pack the abdominal cavity and the abdominal incision is sutured.

As you may see, they generally do total hysterectomy for fibroid of the uterus. We hear no more of external or internal pedicles. This method is considered as more rapid and superior to all others.

Let us finish this excursion in the New York hospitals by a visit to Roosevelt. Dr. Cragin has something to do at McLane's operating room, let us go and see him.

I already said it, we are here in a real marble palace. Floor, walls, doors, all is in marble, the hose could be turned on everything if they wanted it. Antisepsis is absolutely perfect. Irrigation is made with portable crystal vases, the nozzles are of glass. Sterilized towels are taken out of the sterilizer, warm, smoking. They are applied everywhere, on the patient to limit the field of operation, on the chest of the operator, assistant and nurses, and fixed with safety pins. The pads destined for the abdominal cavity are supplied at one extremity with a tape upon which a forceps is applied during the operation ; impossible therefore to forget one of these pads in the abdomen after the operation.

A woman with an ovarian cyst is being operated upon. Small incision. The cyst is adherent to the parietal peritoneum. Tapping with Tait's trocar supplied with a long rubber tube. The adhesions are separated and the cyst extruded ; it is an adeno-cystoma. The pedicle is transfixed with Deschamp's needle and tied with catgut. The abdomen is closed with three tiers of suture. At first, silver wires are introduced and left untied. Then suture of the peritoneum and aponeurosis with continuous catgut, interlocked at each stitch, as Willie Meyer does it, and finally twisting of the silver suture. Dressing of sterilized gauze, maintained by large rubber adhesive bands encircling the whole abdomen and a many tailed linen bandage. In New York they seemingly do not like to trust buried ligatures of silk-worm gut generally, they now willingly use continuous catgut. Edebohls employs chromicized catgut, which is not absorbed for several weeks.

The other patient has had several attacks of peritonitis. She is greatly emaciated, has some temperature ; there must be something wrong in the pelvis. The uterus is curetted and irrigated ; no gauze packing. The posterior cul-de-sac is opened with scissors, the finger introduced into Douglas' pouch. A stream of fetid pus spurts out. Irrigation of the cavity ; drainage with two large rubber tubes, through which antiseptic injections will be made daily.

The third patient is a women who came into the hospital several months ago to be treated for a chronic cystitis. Various methods of treatment having proved unsuccesful, Dr. Cragin opened a button hole through the anterior vaginal wall, near the neck of the bladder, and obtained, by that means, the complete cure of the disease. In order to perform the vaginal cystotomy, the professor advises the introduction in the urethra of a dull uterine curette with which the vesico-vaginal wall is made to bulge in the vaginal cavity. The bistoury takes the eye of the curette as a guide to cut

the tissues, and by that means the operator avoids the recession of the vesical mucosa before the knife. The incision must be two inches long and care must be taken not to wound the ureter or the neck of the bladder. Now that the patient is cured from the affection which took her to the hospital, the fistula must be repaired. This is done very simply. The woman is in Sim's position. With the bistoury and scissors the tissues are pared in a cup-shaped fashion, paying special attention not to remove any of the vesical mucous membrane. The sutures are then applied with silver wire or silk-worm gut.

Speaking of the New York hospitals, it is impossible to pass over silently the Sloan Maternity, situated almost opposite Roosevelt, and which I had the pleasure of visiting from the basement to the attic, owing to the kindness of the medical adviser, Dr. Broadbent. This Maternity is annexed to the Vanderbilt clinic open to the students of the College of Physicians and Surgeons of New York. It is absolutely the ideal of the kind. One must see that establishment to have a just idea of its perfection. The four flats are occupied by public wards, each containing six or eight beds. The order, cleanliness, antisepsis leave nothing to be desired. On each flat, a room is reserved for septic cases, where a patient is carried as soon as she offers the slightest elevation of temperature after confinement. There is also in every story, a labour room, where the woman is delivered on an operating iron and glass table. Everything is thoroughly sterilized, instruments, dressings, the accoucheur, his assistants, exactly as for a gynæcological operation. And one must see with what care all observations are gathered. I lay before you the charts used in that institution; in perusing them you shall see whether it is possible to do better.

The Sloan Maternity is exclusively reserved for poor people; women who can and are willing to pay are not admitted, but are sent elsewhere. After delivery, the parturient is kept in bed for eight days. On the ninth she is allowed to get up but not to walk. The following days she tries her wings, and the twelfth day she is discharged.

When mastitis is threatening, massage is used, salines given and ice-bags applied to the breast; never any poultices. Against sore-nipples, borated lotions are made and the nipple dusted with one part of talc for two parts of salicylic acid.

Mr. Chairman and gentlemen, I am through with the narration of my trip amongst the surgeons of New York. The journey may have appeared long to you, but as far as I am concerned I found it very short, believe me. I have given you but a very pale description of

what I have seen and learned, and I voluntarily omitted a great many facts which nevertheless were certainly not devoid of importance. However, I think I have said enough to convince you of the interest which even a short sojourn in that great city offers to whomsoever is willing to observe and study. This scientific bath is refreshing and stimulates our courage. We go back to our work with an increased ambition, satisfied that down there, as well as here, and in every part of the world, work is obligatory to every one, and for the physician—labour is no more a burden when he cherishes the hope of never stooping in vain over human sufferings since study and experience always enable him to heal, relieve or console those who have confided their health and their life to his care.

Ephemerides, 1895.

By William Osler, M.D.

VII. Arthritis Deformans in Childhood.

Of this rare condition I saw a case in Montreal with Dr. Howard, a case at the University Hospital in Philadelphia, and during the past six years two patients have been at the Johns Hopkins Hospital; all these were in children above ten years of age. The following very advanced case came under observation in December:

E. P. K., aged seven years, the third child, was brought by his father for a condition of chronic swelling of the joints, with wasting There was no history of rheumatism or of any joint troubles in either the father's or the mother's family. The father had not had syphilis. The child was strong and well until about three and a half years of age, when the ankles began to swell. He had not had scarlet fever or rheumatism. From the onset to the present the swelling of the joints has been progressive. He has never been laid up in bed, but he has had in the past three years many "spells" in which he has had fever, and in which the joints would be a little tender. At times he has had at nights very heavy sweats. For months he would be better and suffer but slight inconvenience; then for weeks he would with difficulty be able to get about the house.

The child is a small, feebly developed, intelligent looking boy. The colour is a little yellowish. The head is held to the left and the chin cannot be moved to the middle line. The neck is completely fixed and moves with the head and trunk. He can neither nod nor rotate it from side to side. From behind, it is seen that there is much thickening about the spines and lateral processes, and the cervical vertebræ present a solid immobile mass. The temporo-maxillary joints are not affected. The left arm is semi-flexed and cannot be fully extended. The elbow-joint is uniformly enlarged and the tissues about it much thickened. The head of the radius seems involved, and the movements of pronation and supination are very limited. Any attempt at motion in this joint causes pain. The right elbow is not affected. The left wrist is enlarged, flexion and extension are very limited; there is no fluctuation. As he stands he looks knock-kneed from the marked eversion of the right leg. The right knee-joint is greatly enlarged. The movement is limited; the patella is flexed;

there is much ligamentous thickening, and the end of the femur seems to be expanded.

The feet are most affected. Both are freely movable at the ankle, and the malleoli are not expanded. The tarsal and metatarsal bones are, however, greatly enlarged and their ligaments are thickened; the skin over this is raised, but natural looking. The tendons can be felt, but there appears to be uniform involvement of the bones. The joints of the toes and of the fingers are not affected.

The temperature was normal. The reflexes were not increased; there were no disturbances of sensation or trophic changes about the nails or skin. The heart sounds were clear. The edge of the spleen was just palpable; the liver was a little enlarged. There was albumin in the urine and tube casts.

The child died early in January of this year from an acute intercurrent nephritis with dropsy.

There could not have been a more typical picture of arthritis deformans. I had never before seen the cervical vertebræ involved in a child. There did not seem to have been any determining factors as the disease began insidiously and at an unusually early age.

VIII. Unusual Types of Night-Terrors—Day-Terrors.

Two cases of night-terrors were brought for consultation; one illustrating the association with adenoid vegetations; the other a somewhat unusual type, allied to hysteria.

S. H., boy, aged seven, sent by Dr. Tompkins, of Fredericksburg, Va.

For between two or three years he has had at intervals attacks at night, usually after he has been asleep for an hour or two, in which he would arouse, jump out of bed, and talk silly, as if demented. He at first rarely had more than one attack in the night. They have been always much worse if he had a slight fever. In some of the attacks he is excessively frightened, but as a rule he jumps up and gets out of bed, talks in an incoherent, senseless way, and seems dazed for a few minutes. On the day following the attack he is depressed and miserable. From the onset of the trouble he has breathed very noisily at night, and snored and snorted a great deal. He once last year had the throat treated with very great benefit, but the condition has now become aggravated, and is very much worse.

The boy's facies suggested adenoid vegetations; both tonsils were enlarged, and growths could be felt in the vault of the pharynx.

I have heard from the mother recently; she says that the local treatment of the throat has benefited the child very greatly, and he had had only three attacks in three months.

The character of the attacks were not like the usual night-terrors of children. He never awoke screaming, but he would always get out of bed, on the edge of which the mother would find him sitting, talking in an incoherent way, and he would be quite dazed for a minute or two. It was really more of the character of night-mare than night-terrors, the distinction between which has been well drawn recently in an article by Coutts (*American Journal of Medical Sciences*, February, 1896).

The following cases may be described as nocturnal hysteria:

L. K., a lad aged eleven, the youngest child; mother very nervous, and as a younger woman, had hysteria badly.

For two years the boy has had at irregular intervals, usually one or two in a fortnight, curious attacks at night. As a rule he would go to bed feeling quite well. After sleeping for two or three hours, he would rouse, calling out loudly, " I cannot get my breath," " I cannot get my breath," would sit up, gasp for breath, the whole body and hands trembling and shaking, so that even the bed would shake with the movements. The hands and feet would become cold and clammy, and he would get cold to the waist. He was always very terrified in the attacks, and would grasp his mother or anyone who sat by him. He would not change colour, but during the attack would sob, and often grasped at the throat. The incessant complaint, however, was a choking feeling that he could not get his breath. On the morning following the attack he always seemed very despondent and depressed.

There has been no variation whatever in the character of the attack during the two years. The difficulty in breathing was the point upon which he always laid stress, so much so that his elder brother nick-named him " Breather." He has passsd two, or even three weeks without an attack.

He had been treated systematically by several physicians; had had his eyes and throat examined, but the attacks had not lessened.

The boy was delicate looking. There was a slight facial tic, consisting in movements of the muscle of the eyes and lips. During the examination he frequently drew deep breaths, often with a little lateral movement of the muscles of the lower jaw. The abdomen during the examination was constantly protruded and flattened with great rapidity, owing apparently to rhythmical contraction of the diaphragm. His mother had noticed this at times, and she spoke of it as a trick. He wore glasses for a refraction error.

The boy had gone to school, had progressed fairly well with his studies, and though often nervous and irritable, he had never had an

attack of shortness of breath in the day time. The attacks never seemed to have been brought on by errors in diet. The examination of the heart and lungs was negative.

I saw the other day with Dr. Chatard a remarkable case of "day-terrors" in a child of six, belonging to a very neuropathic family. For nearly ten years she had had attacks in which she saw things, and putting her hands over her face, would, for a few minutes, be in a perfect paroxysm of terror. At first the attacks came on only when she had a little fever, but for the past year they have been more frequent, and she has had as many as four or five in a day. She would see frightful objects in certain pictures, and often in the same one, which to comfort her would have to be turned to the wall. The attacks were most common in the evenings after the lamps were lighted, and when she went to bed. She never, however, awoke out of sleep in the attacks. Before their onset she was often peevish and worrying. The hallucinations were chiefly of animals of frightful size and aspect, and these she would see appear from the pictures, or from the doors, or even from persons faces, or her father's little finger. During the attacks she rocked herself to and fro, and shook in an agony of fright.

She is a bright, intelligent child, very well nourished. The paroxysms are of such intensity and so distressing to the mother that some months ago a doctor recommended that she should take a whiff or two of chloroform, and this controls the paroxysm immediately. She knows when they are coming, and now will tell her mother to get the chloroform ready.

She has at intervals been a mouth-breather, and she has at present enlarged tonsils and a few adenoids, which the mother was urged to have removed.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Serum Therapy in Diphtheria.

WIDERHOFER. "Ueber 100 mit Behring's behaudette fälle von Diphtherie."—*Deutsche Med. Woch.*, January 10, 1896.

MARTIN AND SMITH. "Cases of diphtheria treated with antitoxin in University College Hospital."—*British Medical Journal*, January 25, 1896.

Among the many articles which during the past months have recorded statistics of the value of antitoxic serum in diphtheria, few present their records in so interesting and useful a form as those given recently by Prof. Widerhofer, of Vienna.

Being supplied with a limited amount of serum he has selected for his observations and treatment only those cases which were considered severe, and his studies have been directed towards a knowledge of the limits and possibilities of serum therapy. It has been used therefore in instances even where grave complications, such as pneumonia, sepsis, etc., have supervened and the aggregate of his results have fully justified his acceptance of the serum as a veritable specific.

The Lœffler bacillus was found in 96 cases, and of the four remaining no bacteriological examinations were made in two, through some unfortunate error. Of his 100 cases 24 died, while the total mortalities in three previous years were respectively 52·6, 34·2, and 39·8 per cent. Considering that in the present year his cases were only such as are to be regarded as severe, while in the past three years the records include all cases, mild and grave, the low percentage of the present mortality is still more emphatically in favour of the serum therapy.

Fatalities were due to varied causes, which are synopsized as follows:

In 13 cases, descending croup.

In 5 cases, sepsis.

In 1 case, œdema glottidis.

In 1 case, scarlatina and capillary bronchitis.

In 1 case, recurrent diphtheria in a convalescent from catarrhal pneumonia.

In 2 cases, measles with pneumonia.

In 1 case, tuberculosis with bilateral empyema.

The septic cases are of especial interest, for the lethal results were in the majority of instances due to the presence of streptococci. Cultures from the throat showed in early examinations a marked preponderance of streptococci over diphtheria bacilli, so that this feature might be of some guide to prognosis under certain conditions.

With reference to treatment, the same rapid improvement resulted as has been frequently recorded by others, and a special importance attaches to the fact that cases which are ushered in with the severest symptoms show in most instances the greatest benefits from the serum injections. He insists therefore on early treatment, and in this respect Sydney Martin is likewise very emphatic. Where cases are treated before the third day the prognosis is all the more favourable, and only harm can follow from waiting until serious symptoms arise. We cannot predict in the first day or two as to the probable severity of the case, and hence the necessity of injecting as early as possible.

Both Widerhofer and Martin show that people have over-estimated the evil results following use of the antitoxin. Occasionally rashes and joint pains have supervened, but in all cases these have been rapidly and readily amenable to treatment. Large doses do not induce these signs any more than do small doses. Widerhofer, further, cannot regard the albuminuria of such cases as other than a mere coincidence, and insists that nephritis does not result from the effects of a serum injection alone.

The main features of the Vienna observations have led to the following conclusions:

1. Behring's serum is a specific against certain groups of diphtheria cases.

2. When treated within three days all cases, even the gravest, are in the large majority of cases liable to be rapidly cured.

3. Where mixed infections occur, above all where streptococci have entered the system, the serum is less potent.

4. The serum is likewise beneficial in laryngeal diphtheria, though its effects become lessened according as the membrane passes beyond the larynx.

5. Where broncho-pneumonia is present the serum is of but little effect and the prognosis correspondingly grave.

C. F. Martin.

Pneumonia as a Complication of Diphtheria in Children.

BERG, HENRY W. "Pneumonia as a complication of diphtheria in Children."—*New York Medical Record*, March 14, 1896.

The author of this paper finds that the brilliant results obtained by the use of antitoxin serum in diphtheria are materially diminished by the large number of deaths which are the result of broncho-pneumonia. In the Willard Parker Hospital, out of one hundred and twenty-four deaths during nine months of antitoxin treatment in 1895, sixty-six were due to broncho-pneumonia. It was noted that, whereas in 1894 those who died of this complication had had an average of only two days hospital care, in 1895 fatal cases due to broncho-pneumonia had had an average of 13.7 days of hospital care, which would seem to show that the antitoxin treatment had enabled even the most virulent cases to resist the occurrence of this serious complication. The time at which diphtheria may be complicated by the onset of pneumonia varies. It may be within a few days, or again, it may be deferred to the second or third week of the illness.

It has been found that, in cases of tracheotomy, when the lung becomes inflamed immediately after the operation, the complication is apt to be broncho-pneumonia, whereas lobar pneumonia is more liable to set in at a later period.

Some of the causative factors are :

1. In diphtheria of the larynx, direct extension of the membrane through the bronchi into the air cells.

2. Minute pieces of false membrane may be drawn by aspiration into the farthest ramifications of the bronchi.

3. In cases where intubation has been practised, minute particles of food may be drawn into the lungs ; in tracheotomized cases, foreign bodies may similarly gain entrance ; and finally, in partial occlusion of the larynx and trachea, the proper expulsion of the secretions may be interfered with and thus set up a series of processes that terminate in a more or less inflammatory condition of the lung.

Dr. Berg considers that infection is the most frequent cause of pneumonia complicating diphtheria. The streptococcus is the germ which would seem to be constantly present in these cases. Dr. Vetter, in a series of bacteriological studies of broncho-pneumonia complicating diphtheria in adults and children, found streptococci present in every case, and it would seem highly probable that this mixed infection may be transmitted from one patient to another. This is a factor of importance in diphtheria hospitals. The virus of such a mixed infection reaches the lungs partly by aspiration and partly

through the lymphatics. A final element in the causation of this disease is the condition of the hygienic surroundings.

The varieties of inflammation of the lungs complicating diphtheria are : Congestion of the lungs, gangrenous pneumonia, lobar and broncho-pneumonia. Congestion of the lungs alone is rare, as is also gangrenous pneumonia. Sturgis and Coupland found lobar pneumonia in 14 per cent. of their fatal cases. Broncho-pneumonia is the form most frequently present.

From experiments made by various investigators, the following conclusions are warranted :

1. Streptococci with Lœffler bacilli, with or without other cocci, are the bacteriological cause of pneumonia complicating diphtheria..

2. Mixed infection not only causes this and other complications, but it increases markedly the virulence of the diphtheria bacillus.

In the recognition of the onset of pneumonia, the writer lays great stress upon two points : namely, a rise in temperature and an increased rapidity of respirations as compared with the pulse. By observing these two symptoms, he is frequently able to diagnose pneumonia long before the physical signs give any proof of such a condition. Not infrequently the physical signs will be masked by the deeper portion only of the lung being affected.

The prognosis varies with the extent and nature of the disease. Lobar pneumonia is the most favourable. Isolated patches of broncho-pneumonia, even when of considerable size gives a better prognosis than cases the result of the extension of the primary disease. Gangrenous pneumonia is of course absolutely fatal. Furthermore, the prognosis depends upon the severity of the diphtheritic process, the stage of the disease in which the pneumonia has occurred, thecondition and surroundings of the patient. Pneumonia complicating tracheotomized cases is very fatal. Intubated cases are also very grave, but less so than the preceding.

This being a disease due to bacterial infection, cases of diphtheria complicated by pneumonia should be isolated from cases of pure diphtheria.

In the treatment of broncho-pneumonia complicating diphtheria, Dr. Berg discourages the use of antiseptic vapours, denying that they retain their antiseptic properties when they reach the seat of the disease in the finer bronchioles and air-cells. He advises inhalations of oxygen. The cold pack is the best antipyretic agent. Poultices should never be used. He also recommends digitalis and strychnine,

and larger doses of antitoxin serum than one would give to an uncomplicated case of diphtheria.

As the streptococcus plays so important a rôle in the causation of this disease, the writer recommends the use of anti-streptococcus serum. This serum has been used by Dr. Marmorek in the treatment of other diseases in which the streptococcus is present, and with considerable benefit, the death rate in his cases of erysipelas having been reduced by one-half.

E. J. Semple.

Surgery.

Local Anæsthesia.

LUND. "Recent advances in the method of local anæsthesia."—*The Boston Medical and Surgical Journal*, February 6, 1896.

For very many years the want of a local anæsthetic has been growing greater. One is often deterred from performing needed operations because the patient has diseased kidneys or has an unnatural dread of taking an anæsthetic. There is also a large group of cases demanding surgical interference of a minor, yet painful, nature, when the ill-effects which so often follow general anæsthesia may well be balanced against the sharp incision of short duration. The patient dreads the one and fears the other.

A safe and satisfactory local anæsthetic would fill a long felt want. With it a small growth might be removed or a whitlow opened and curetted, the patient walking quietly home afterwards, while, if a general anæsthetic must be administered, the patient must be "prepared," and an assistant obtained, and the patient must spend the remainder of the day at home, probably suffering more from the after effects of the anæsthetic than from the effect of the operation itself.

Neither could a general anæsthetic be administered in out-patient departments, unless some friend was present willing and able to take the patient home.

Freezing mixtures have been tried and generally abandoned because producing imperfect anæsthesia and being more or less painful in application.

In 1884, when Köller, a student of medicine at Vienna, accidentally discovered the anæsthetic effect of cocaine hydrochlorate upon the mucous membrane of the eye, great hopes were entertained that a local anæsthetic had at last been discovered that would prove generally useful. But although fairly satisfactory when applied to mucous membrane, it was not absorbed by cutaneous surfaces to a degree sufficient to cause anæsthesia.

The introduction of cocaine solutions by electrolysis was tried without success. It was then found that solutions of cocaine injected subcutaneously along the trunk of a sensory nerve would produce local anæsthesia in the area of its distribution. It was found difficult, however, to found a satisfactory technique upon this principle. As

applied, it consisted of the injection of a few minims of a two to five per cent. solution of cocaine *under* the skin in four or five places surrounding the operative field, and so situated as to reach, if possible, the branches of the sensory nerves which supplied it. It was found necessary to wait five or ten minutes for the drug to be diffused among the tissues and to be brought in contact with the various nerve filaments which supplied the part. This method was sometimes successful and sometimes a failure. The failure was due to the well-known anastomosis of terminal nerve filaments.

This method also was not without danger. Many surgeons have had experiences in the use of hypodermic injections of cocaine that have prevented them from using it again, and numerous deaths have followed its use by this method.

Certain men, however, notably Reclus in France, Lauderer in Germany, and Halstead in the United States, have persisted in its use and developed the technique.

Gradually, however, weaker solutions came to be employed, and of these it was found possible in many cases to use enough to thoroughly infiltrate the whole operative field with the solution. Better effects were obtained when the solution was injected *into* instead of *under* the skin, and when, starting from the area infiltrated by the first puncture, the operative field was gradually and thoroughly drenched with the fluid, the needle never being pushed outside of the area previously anæsthetized, a perfect local anæsthesia to all operative procedures was found to be produced. Weaker solutions (2 per cent. and less) were found to give the best results, because it was safe to use enough of them to thoroughly infiltrate the tissues. When this was done it was found not to be necessary to wait for the anæsthetic effect to be produced, but that the operation could be begun at once. Those who had most knowledge and skill in the use of cocaine used the weaker solution, $\frac{1}{2}$ to 1 per cent.

In certain instances it was found that after anæsthesia had been established by cocaine solutions the anæsthetic area could be extended by injecting pure water, beginning within the infiltrated area. The injection of water without previous cocainization was, however, an exceedingly painful process.

Schleich, of Berlin, has recently published a monograph which, if true, placed local anæsthesia by the injection of anæsthetic fluids upon a scientific basis, and rendered its more extended application safe and feasible. This method has since been given extended trial; and while it has not, and probably will not, as its author thinks probable, become of such general application as to render the employment of a

general anæsthetic a surgical rarity, its has none the less widened in some degree the field for the safe and efficient use of local anæsthesia, and enabled operations to be performed without pain or danger, in cases where a general anæsthetic was contra-indicated. To Schleich is due the credit of demonstrating that the intra-cutaneous injection of various drugs (not alone cocaine) in very dilute solution produced local anæsthesia. Instead of the effect depending solely upon the drug itself, the anæsthesia was found to be due to the pressure of the infiltrating fluid upon the nerve filaments, the artificial anæmia which it produced and the comparatively low temperature at which it was injected.

Beginning by gradually diminishing the strength of the cocaine solutions employed, and following the principle of endermic injection, he found that in the white wheal produced by a syringeful of a two-hundredths per cent. solution of cocaine there was absolute insensibility to pain, and also that no pain was present during the injection. This solution was so weak as to suggest that the cocaine might be entirely omitted, which was done, with the result of finding that complete anæsthesia was produced throughout the area of infiltration, but that severe pain was experienced during the formation of the wheal.

It was next found that physiological salt solution (six-tenths per cent.) produced no pain on injection, but that it also had no anæsthetic effect, a fact probably due to the circumstance that it was absolutely non-irritating to the nerve terminals. A salt solution of two-tenths per cent., however, was found to produce only slight paresthesia on injection, while complete anæsthesia was produced in the infiltrated area. With this solution a nævus was excised from the neck of Dr. von Bergmann without producing the slightest pain.

Solutions of other drugs were also found to have the same anæsthetic effect, notably these: Sugar, 3 per cent.; potassium bromide, 3 per cent.; morphine, 1 per cent.; carbolic acid, 5 per cent., and caffeine, 2 per cent. The anæsthesia was found, however, to be preceded by more or less irritation.

Inasmuch as common salt solution is an efficient anæsthetic in the strength of two-tenths per cent., it may be asked why is not that sufficient, and why should any cocaine or morphia be added to the fluids to be practically employed for local anæsthesia? The answer is that although the injection of 2 per cent. salt solution into healthy tissues produces but slight pain, the surgeon has often to deal with tissues rendered hyper-sensitive by inflammation. The injection of salt solution into inflamed tissue causes extreme irritation and pain.

The gratifying fact, however, was ascertained by Schleich that by the addition of a very small amount of cocaine, morphia or carbolic acid to these solutions they could be successfully employed, even in tissue rendered hyperesthetic by the pressure and tension of inflammation.

In infiltrating the wall of an abscess it must be remembered that injections into the cavity itself do no good. If there is no outlet they cause extreme pain from increased tension ; if the outlet is present, they run out without infiltrating the tissues and therefore without producing any anæsthetic effect. Injections into the sacs of cysts or the tissue of tumours which we wish to remove are equally fruitless in their results.

It is also essential to remember, that only the infiltrated œdematous tissue is anæsthetic, and that when it becomes necessary to extend the operative field beyond the infiltrated area, the injection must be carefully continued out in the direction required, starting within the anæsthetic area. The surgeon must be prepared at any moment to drop the knife and use the syringe.

The following solutions are recommended by Schleich, the first or stronger one being necessary only for operating on inflamed or hyperaæsthetic tissues. The second is used for all operations of no more than moderate extent on tissues not inflamed. The third is to be used in extensive operations when it has been necessary to inject so large an amount of the other solutions that there is danger of exceeding the limit of tolerance of the drug.

No. 1.

Cocain mur	.2
Morph. mur	.025
Natr. chlor	.2
Aq. dist. sterilis ad	100.
Add acid carbol. (5 per cent.)	2 gtt

M. O. S.

No. 2.

Same as No. 1, except cocaine.

No. 3.

Cocain. mur	.01
Morph. mur	.005
Natr. chlor	.2
Aq. dist. sterilis ad	100.
Add ac. carbol (5 per cent.)	2 gtt

The small amount of morphia present in these solutions has been added for the purpose of diminishing the pain which sometimes

follows operations under infiltration anæsthesia during the time the infiltration is being absorbed and the carbolic acid to ensure the preservation of the solution.

By the use of these solutions Scleich claims to have performed such operations as ovariotomy, cholecystotomy, ligature of the common carotid, and in fact to have been able almost entirely to dispense with general anæsthesia. The anæsthesia begins immediately after the infiltration is completed and lasts about twenty minutes. Every tissue of the body, nerve, muscle, skin, gland, mucous membrane, etc., is rendered anæsthetic when infiltrated in the manner described, and the same effect is produced upon bone by infiltrating the periosteum, or injecting the medulla.

As these solutions act better when cold, it is recommended that they be kept on ice.

Puncture or Incision of the Pericardium.

Delorme et Mignon. "Sur la ponction et l'incision du pericarde." —*Revue de Chirurgie*, Octobre, 1895.

The authors begin their article with a brief history in which it is pointed out that puncture of the pericardium was first proposed by Riolan in 1646, but only become an accepted operation in 1840, after the operation by Schub, of Vienna. Schub used a trocar, and since that time paracentesis has been the recognised method of removing fluid from the pericardium, notwithstanding Trosseau's effort to substitute incision. It is then shown that the classical operation of puncture or incision must of necessity wound the pleura in the great majority of cases.

The differential diagnosis between effusion into the pericardium, and effusion into the pleura, mediastinal tumour and dilatation of the heart is somewhat fully discussed. The history of a mediastinal tumour is very different from that of a pericardial effusion. A mediastinal tumour can only with difficulty work its way between the sterum and costal cartilages and pericardium, and in doing so would produce other symptoms of compression. Dilatation of the heart to a degree sufficient to cause difficulty in distinguishing from pericardial effusion is rare. In dilation the cardiac bruits can be heard, feeble but not afar off.

The heart is an organ very tolerant. The pericardium permits serous transudation, but has also power to reabsorb rapidly.

The opening of the pericardium should be reserved for those cases where the limit of tolerance is reached and the phenomena of cardiac adynamia become apparent.

One of the first signs is frequency of respiration. The number of respirations may be 40 or 50 to the minute. The patient first gets propped up on two or three pillows and finally sits up in bed.

Cyanosis and enlargement of the superficial veins of the neck and hands are seen.

The pulse is small, unequal and irregular, 120 to 150 beats to the minute. The inequality is more often felt than the irregularity. It is one moment strong and then feeble. Dicrotism is not rare.

The patient complains of a vague pain over the left thorax, and sometimes of a constriction about the base of the chest.

Œdema over the præcordia sometimes develops to such a degree that the ribs cannot be felt.

Dulness on percussion extends 15 to 16 c.m., in a vertical and 18 to 20 c.m., in a transverse direction.

The hand placed over the breast fails to detect any cardiac impulse.

The distension of the pericardium may be so great as to cause compression of the œsophagus, and difficulty in swallowing.

The indication in such cases is, clearly to relieve the distended pericardium, and the operating surgeon naturally asks himself, shall it be by puncture or incision. It is often impossible to determine before aspiration whether the fluid is serous or purulent. The following rules are laid down :—

1. Aspirate first. If the fluid is serous or sero-sanguinolent be satisfied to empty the pericardium in this manner. If the fluid is found to be purulent, then at once proceed to incise the pericardium.

If it is feared that there may be adhesions between the pericardium and the anterior wall of the heart, better to perform incision in the first instance than to plunge a trocar in the dark into an organ, the wounding of which may prove fatal to the patient.

Another question may arise here. If the serous fluid returns, should aspiration be repeated, perhaps, several times, or should incisions be resorted to in the event of a re-accumulation of fluid ?

The cases are numerous where after an aspiration which was thought to be complete, at the autopsy a few days later, several hundred grammes of fluid have been found in the pericardium. Is not the rapid return of the signs of pericardial distension after aspiration, the clearest indication that aspiration is not sufficient and that a more radical method of treatment, or in other words, that incision should be resorted to ?

When fluid is removed from the pleural cavity the lung tends to expand and to meet the parietal pleura, but the heart does not move. Multiple punctures do not give the best results.

After incision we can tear some adhesions if necessary, and thus aid the return of the pericardium to the surface of the heart, or modify the conditions by the introduction into the pericardium of some antiseptic solution.

It is now proven that we need not fear to evacuate the fluid from the pericardium rapidly, and arguments against incision based on this argument no longer hold. Illustrating this point the case reported by Eiselsberg of Utrecht, is very instructive. His patient suffered from pericardial effusion, the result of a wound from a knife in the cardiac region. After three punctures at intervals of a few days, evacuating each time about a litre of pus, the fourth costal cartilage was resected and the pericardium incised. It still contained two litres of pus with large fibrinous clots. The cavity was washed with a warm salicylic acid solution and drained with two tubes. It was afterwards injected daily with iodoform and glycerine emulsion. The cavity became smaller and smaller, and in seventeen days afterwards the tubes which had been gradually shortened were removed altogether. Four weeks later the wound was completely cicatrized and the patient left the hospital cured.

In front of the pericardium to the left and in the median line were the following:

1. The skin and subcutaneous cellular tissue.
2. The pectoralis major muscle.
3. The sternum, costal cartilages and intercostal muscles with their fasciæ.
4. The internal mammary artery and the triangularis sterni muscle.
5. The left pleura and the right pleura.
6. The cellular tissue of the mediastinum.

The pericardial effusion may be sero-fibrinous, sero-sanguineous, hemorrhagic, sero-purulent, or purulent. Louis found in 36 cases, 9 serous, 5 sero-sanguinolent, 13 sero-purulent 7 purulent.

The quantity varies from 200 or 300 to 800 or 1,000 grammes. In one case 1,500 grammes of pus was found at the autopsy.

In the majority of cases the heart floats free in the fluid. It is not yet definitely determined whether in the absence of adhesions the heart lies nearer the anterior or posterior wall of the pericardium.

Geo. E. Armstrong,

(To be continued.)

The Surgical Examination of the Lungs.

TUFFIER. *Gazette des Hôpitaux*, No. 135, November 21, 1895.

M. Tuffier, in a communication to the Société de Chirurgie, describes a method for the surgical examination of the lung by means of incision

of the chest wall with peeling off of the parietal pleura. Up to the present it has been the custom in cases where such an examination is found necessary to incise the parietal pleura, thus creating a pneumothorax, but it appears that it is quite possible for this to be done without the incision embracing the pleural cavity, the parietal pleura being pushed gently away from the chest wall at the point where the required examination is to be made.

The detachment of the parietal pleura is comparatively easy on the sides and towards the apices of the lungs. Clinical observation and post-mortem examination show :

1. That the parietal pleura is easily detached if due care is taken not to tear it.

2. That by the resection of a piece of rib 5 cm. (2 inches) in length it is possible to peel off the pleura beneath and around the incision to the extent of a hand's breadth.

3. That the pleura appears to be most adherent at the upper and lower borders of the ribs ; once detached from these points, it is easily separated from the intercostal muscles and the surface of the rib.

4. That the presence of the ligaments of Sebileau at the apex does in no way interfere with the peeling off of the pleura. After an incision parallel with the first rib has been made and the second rib excised for a distance of about 3 cm., it is possible to expose completely the apex of the lung to the extent of being able to touch with the finger tips the anterior aspect of the posterior wall of the thorax at the level of the first, second and third ribs.

5. That this method is much more easy upon the anterior than upon the posterior aspect of the thorax.

6. The parietal pleura having been detached, the pulmonary tissue can be examined under its coverings, both by touch and by sight, with the greatest ease.

M. Tuffier mentions the following case as an example of the applicability of his method :

A man of about 60 years of age was admitted to hospital on October 23, 1895, under the care of M. Roget, who diagnosed a condition of gangrene of the middle lobe following on pneumonia. M. Roget, after treating the patient medicinally for fifteen days without benefit, and in view of the development of symptoms of septicæmia, asked M. Tuffier to see the case. Upon examination he found the patient profoundly anæmic, the temperature varying between 37·5° C. and 40° C., the pulse soft, compressible and extremely rapid ; the breath extremely fœtid, and all the signs of a progressing infection.

On Nov. 7, 1895, the patient having been anæsthetized and placed

upon his left side, an incision 10 cm. in length was made in the eighth space on the right side, exactly over the point where the clinical signs indicated the presence of the disease. The intercostal muscles having been divided, the parietal pleura was exposed and detached from the muscular fibres. The lung beneath appeared normal. He then detached the parietal pleura from the lower border of the eighth rib and with some difficulty from the upper border of the same rib; the eighth rib was excised for a distance of 5 cm., and he finally succeeded in exposing the pleura over a surface as large as his hand. The condition of the lung was recognized without difficulty. It felt spongy and pliable and presented no change in its consistence. Continuing the separation of the pleura at the upper boundary of the exposed part, the operator suddenly came upon a portion of lung of increased density, and altogether different from the remainder of the pulmonary surface. He immediately concluded that this was the site of the lesion and succeeded in isolating the part, which was hard to the touch and yellowish in colour.

Adhesions of the parietal and visceral layers of the pleura were present at the site of the disease, and having cut through about 1 cm of pulmonary tissue he came upon a large cavity, from which escaped a brownish and very foul pus containing numerous blood clots and fragments of lung tissue. The cavity having been emptied of its purulent contents was packed with iodoform gauze and the remainder of the wound united. During the operation the patient breathed easily, the lung acting as usual beneath its double coat. The good effects were shown by the temperature falling and a great amelioration in the condition of the patient.

M. Tuffier lays down the following rules for guidance in the performance of this operation:

1. The patient being anæsthetized and placed in the proper position, the site of the disease being localized by the physical signs, an incision is made in the *middle* of the intercostal space overlying the lesion, as the parietal pleura is most easily detached at this point. Bleeding must be promptly arrested, so that the subsequent steps of the operation may not be interfered with.

2. Having reached the parietal pleura, it is carefully detached from any muscular fibres which may be adherent to it. If the disease does not appear to exist at this particular point, the pleura is carefully separated from the upper and lower borders of the two adjacent ribs. The rib having been denuded of its detachments by the raspatory, the intercostal nerve is divided, the vessels clamped and a portion of the rib is removed. The detachment of the parietal pleura being

completed, it rests upon the visceral layer, and palpation of the parenchyma of the lung then becomes an easy matter. As lesions requiring such an operation are as a rule peripheral, deep palpation is rarely called for. The exploration of the lung may extend over a considerable surface, the hand being gradually introduced between the chest wall and the parietal pleura.

3. Having reached a point where the consistence of the lung and its appearance are sufficient to arouse suspicion, the lung tissue is divided and the lesion exposed. Sufficient drainage must be provided when the wound is being closed.

While M. Tuffier's method is of value when one is dealing with a normal pleura, in cases of chronic pleurisy it would doubtless be a failure. The friability of the pleura would then preclude the possibility of its detachment from the chest wall without tearing.

E. J. Semple.

Ophthalmology.

Bacteriological Etiology of Keratitis and Conjunctivitis.

Bach. "Bacteriologische Untersuchungen über die Œtiologie der Keratitis und Conjunctivitis Eczematosa nebst bemerkungen Zur eintheilung, Œtiologie und Prognose der Hornhaut geschwure." —*Græfes Archiv.*, XLI. No. 2

Bach found staphylococcus pyogenes aureus only in fresh cases of phlyctenulæ.

He got cultures on agar and inoculation of these cultures in rabbits and men gave rise to typical phlyctenulæ.

The contents of these inoculated phlyctenulæ furnished almost constantly again staphylococcus colonies on agar and gelatine.

From the facts that in an ulcus serpens of the cornea of several days existence, frequently no bacteria were found and that in the rabbit's cornea, inoculated staphylococci disappear in a short time, Bach was led to conclude that the same conditions held in phlyctenulæ, where after a short time no staphylococci could be detected, being found only in the early stages.

Bach can not say whether these are destroyed so quickly in their own products of decomposition or by the influence of the blood current. In favour of the latter possibility, is the difficulty in the development of phlyctenulæ in the loose vascular tissues of the conjunctiva.

Upon the virulence and number of the cocci, as well as the resisting power of the organism, will depend whether a phlyctenule or pustule will develop.

As the same exciting agent occurs in Eczema, Bach considers that the eye disease should be called eczematous keratitis and conjuctivitis.

Between phlyctenulæ and scrofula there is only an indirect connection ; the tendency to mucous catarrhs and delicate skins in scrofulous subjects favours the easy infection.

Corneal ulcers are without exception caused by micro-organisms.

Their situation decides the question of greater or less malignity, central ulcers of the cornea having a less favorable prognosis than peripheral being further away from the blood supply, which rapidly removes the bacterial products of decomposition and destroys also the bacteria themselves.

In central ulcers these vessels develop only in the late stages and

in addition the bacterial products get into the anterior chamber, setting up iritis and its results.

Bacteria in the Conjunctival Sac.

Lachowicz. "Uber die bacterien in conjunctival sac des gesunden Auges."—*Archiv : für Augenheilkunde* Bd XXX Heft 3.

Bach. "Experimentel Untersuchungen uber die infectionsgefahr penetrirender Bulbusverletzungen vom inficirten Bindehautsack aus, nebst sonstigen bemerkungen zur Bacteriologie des Bindehautsackes."—*Archiv : für Augenheilkunde.*

Bach. Bacteriologische Untersuchungen uber den einfluss von verschiedenen specielle Antiseptischen verbänden auf dem Keimgehalt des Lidrandes und bindehautsackes,"—*Archiv : für Augenheilkunde*, Band XXXI Heft 1

Bach's experiments in re-penetrating eye wounds are interesting but his conclusions in some points seem a little hasty.

The paper gives the result of fifty experiments upon the rabbit's eye.

In twenty-five he infected the conjunctival sack with a pure staphylococcus culture and after this with a carefully sterilized knife made an incision in the limbus 6-8 millimetres long.

In the other twenty-five experiments he made the incision first and the inoculation immediately after.

In the first twenty-five, suppuration of the wound occurred in 20 per cent., in the second twenty-five in only 8 per cent.

In ten other cases he made the incision with an infected knife and in nine cases panophthalmitis followed.

Bach concludes that sterilization of the instruments is the chief means by which to avoid infection.

If the wound be in an area free from germs, there is really hardly any danger.

In order to cause infection of a wound, it is not merely necessary that the germs be simply in superficial contact with the wound, but that the microbes must as it were, be pressed more or less into the tissue.

Lachowicz as a result of very interesting investigations has arrived at the following conclusions:

That as opposed to other mucous membranes the conjunctiva is by no means a constant field for the ordinary well known organisms.

The germs sometimes present, come from the air, and remain only temporarily.

As a proof of this, there are the very few and slight cultures which one can obtain when germs are present in it; and furthermore the small number of germ containing microbes found in the conjunctival sac; and finally, the rapid disappearance of any artificially introduced microbes, the different varieties probably disappearing with varying rapidity.

The healthy eye is indifferent to the various bacteria except streptococcus and bacillus xerosis.

In Bach's bandage experiments he applied in some cases moist antiseptic bandages of hydrarg. oxycyanat. 1-5000 or sublimate 1-3000, in other cases a simple dry or moist non-antiseptic bandage.

As a result he finds that the antiseptic bandage had a slight, but by no means constant disinfecting action as compared to the non-antiseptic.

The Position and Function of the Cells of the Oculomotor Nucleus.

STUELP. "Zur lehre von der Lage und function der einzelnen Zellgruppen des Oculomotorius Kerns."—*Aus der Universitäts Klinik zu Strassburg.*

Much obscurity still overhangs the structure and function of the nuclear region of the oculomatorius.

Until now there have been three methods of examination.

1. Faradic stimulation of the separate nuclei.

2. Gudden thought that atrophy of the separate nuclei must follow extirpation of the different muscles from loss of function of the nerve.

3. Microscopical examination of the nuclear region in cases of nuclear paralysis observed during life.

These have all given diverse and uncertain results.

Stuelp formulated a theory as to the position of the nuclei founded on the clinical observation of 229 cases of partial paralysis of the O. M., and on the nature of the combinations of the paralysis.

His results were:—The nuclei of the ciliary muscle and sphincter iridis twigs must be close together and especially in the anterior portion of the nuclear region.

The centre for the branch to the levator palpebræ, in the neighborhood of, and at a certain distance from the nuclei of the branches going to the external muscles of the eyeball.

Backwards lie the nuclei of the rectus superior and internus branches; that to the internus lying near the middle line.

Further back are the nuclei for the rectus and obliquus inferior. that to the rectus inferior near that for the internal rectus and nearer the middle line than that for the obliquus inferior.

The Periods of Occurrences of Optic Nerve Troubles in Syphilis.

JANUSKIEWICZ. "Der Zeitliche Verlauf bei Syphilitischen Erkrankûngen des Sehnerven Nach 150 fällen."—*Centralblatt für Augenheilkunde*, Dec., 1896.

The summary of this interesting article on 150 cases is as follows: 107 were non-inflammatory cases, 45 being genuine atrophy and 62 spinal atrophy. The remaining 43 were cases of neuritis: of which 26 were in the acute stage, and 17 in the stage of post inflammatory atrophy.

Genuine atrophy.—The interval between infection and onset of visual disturbances varied greatly, the shortest, in one case only, being six months, and the longest, in two cases, 29 years. The most frequent occurrence being between the 5th and 10th years after infection, 28.8 per cent. being women, 71.2 per cent. men.

Tabetic atrophy.—Here the shortest period noted was two years in one case, and the longest 30 years, also in one case, the most cases appearing to be between the 5th and 20th years, 16.1 per cent. being women, 83.9 per cent. men.

Acute specific neuritis.—Here the onset as a rule was early, being generally the 1st to 5th years; although in one case it was only $2\frac{1}{2}$ months after infection.

In 11 of the 26 cases marked improvement followed the use of blue ointment, especially in those cases where the neuritis appeared soon after infection. In 4 cases atrophy ensued.

Neuritic atrophy.—These cases occurred mostly late after infection. The shortest interval was 2 years, and the longest 28 years after infection; the result was bad in all cases, 39.5 per cent. being women 60.5 per cent. men. Neuritis occurred in general 1 to 5 years after infection, and the atrophy 5 to 10 years.

Blindness Caused by Male Fern.

GROSZ. "Complete blindness caused by a vermifuge."—*Kœnigl: Ærtzverein*, Budapest.

VAN AUBEL. "Amaurosis produced by male fern."—*Scalpel*, Oct 6, 1895.

Grosz's case was a man 29 years of age who took 8 grammes of extract of male fern in 32 capsules every half hour, with a dose of castor oil between times.

The ensuing day he lost consciousness, had severe diarrhœa, and twenty-four hours later was completely blind, there being mydriasis,

but normal fundus. Ten days later atrophy of the optic nerve was perceptible.

Poulsson mentions 13 cases of intoxication from this drug and three deaths. He considers the amorphous filicic acid poisonous.

The eye symptoms were :—Mydriasis, transient amblyopia or amaurosis, monocular, or binocular, and lasting blindness with atrophy of optic nerve.

The toxic doses were 4 to 45 grammes, depending on whether the preparation was fresh or not, upon the resorptive activity of the bowel, and most of all upon whether castor oil was administered with it or not.

With the oil, absorption is much readier and more rapid, and hence intoxication much more easily occurs.

In one case mentioned, a certain dose without castor oil was harmless, whereas later half the dose with castor oil was lethal ; this in a child $2\frac{3}{4}$ years old.

Knies considered the mydriasis and amaurosis as of peripheral origin, comparable to the amaurosis of quinine and anæmia ; this theory Grosz also holds to.

Van Aubel, in his cases considers also the poisoning as due to filicic acid.

The stimulation exerted by it on the central nervous system and spinal cord also extending to the sympathetic, causing the mydriasis and by vaso motor stimulation contracting the retinal arteries.

He hence considers strychnine and nitrite of amyl, indicated in the treatment of the toxic action.

The ethereal extracts and filicic acid act harmfully on the liver and kidneys ; one had hence better use the essence.

J. W. Stirling.

Pathology.

Upon Contagious Pleuro-Pneumonia of Cattle, Transit Pneumonia and Corn-Stalk Disease.

"Reports of the Minister of Agriculture for the Dominion of Canada, for the years 1893, 1894 and 1895." Ottawa.

"Papers on the subject of the scheduling of Canada by the Board of Agriculture." Ottawa, 1895.

Veranus A. Moore. "An investigation into the nature, cause and means of preventing the corn-stalk disease of cattle."—Bulletin No. 10 U. S. Bureau of Animal Industry, Washington, D.C. 1896.

Having myself performed some part in presenting the pathological aspect of the Canadian case in reference to the scheduling of our cattle by the Imperial Government I have been somewhat chary in referring to the subject in these pages; more especially because this journal deals mainly with human pathology; yet it has been brought home to me of late that singularly little is known in Canada generally concerning the strength of the Canadian contentions, and as at present there is reviving interest in the subject, on account of the further steps to be taken in the Imperial Parliament, the time may not be inopportune to place briefly on record what appears to be the correct interpretation of the matter, from a pathological point of view.

True contagious pleuro-pneumonia is a disease presenting a long and variable incubation period. In the greater number of cases, from three to eight weeks pass between the time when the animal is exposed to infection and the first manifestations, but cases in which three to six weeks or even ten months have elapsed are on record, but these are as rare as they are extreme. When the disease shows itself then again the course is ordinarily of long duration, lasting from a fortnight to several months, according to the severity of the attack. Not all the cattle attacked die, but a fair proportion pass through a long stage of convalescence and recovery, although this recovery is never complete. Here, just as in phthisis in man, the apparent healing in the lungs is of the nature of an encapsulement of the diseased areas, and as in phthisis there is always the danger that with lowered vitality of the individual, the disease may light up again. It will be evident, therefore, how subtle is the spread of the

disease, how case after case may appear upon any one farm, at long intervals, and how many difficulties lie in the way of complete eradication of this lung plague, once it has obtained a hold in any given country,

It is safe to say that contagious pleuro-pneumonia has caused greater losses to British stock owners and dairymen than any other single disease to which animals are subject. Thus, from 1855 to 1860, it has been calculated that more than 1,000,000 animals perished in Great Britain, whose value must have amounted to at least £12,000,000. Nor is this all, the slow advent of the disease, its intense infectious properties, the long duration and the varying period of convalescence have led also to England becoming a centre from which other lands, even in the antipodes, have been affected. Thus, in 1858, a diseased cow was imported into Melbourne, Victoria, and the disease became diffused all over Australia. It is estimated by Bruce that from 1860 to 1875, the loss of cattle was 30 to 40 per cent. of the whole number in the infected colonies, being more than 1,400,000 head. The money lost there was very many millions of pounds. From England also the disease has been more than once introduced into the United States. At first it seems to have been confined within certain areas along the eastern coasts near the port of entry, but in 1878 it spread rapidly, involving the States of New York, New Jersey, Pennsylvania and Maryland, and it gradually advanced to Chicago, and to the west of the Alleghany mountains. Most vigorous methods were eventually adopted, and since March, 1892, no fresh case has been discovered in the States.[1]

By stringent quarantine regulations at the points of danger and at great expense, Canada has, so far, prevented the advance of the disease within her borders, although had it not been for the public spirit of some of her prominent cattle importers, among whom is to be counted the Dean of the Medical Faculty of McGill, and had it not been also for the prompt action of Dr. Duncan McEachran, the chief inspector, the disease would have been introduced into the country in 1880. In that year pleuro-pneumonia was detected in some high-bred cattle imported from Scotland, and although at that time the Government regulations were scarce strong enough to authorize the measure, all the cattle imported on this occasion were killed and most rigorous quarantine was established at Quebec. As a result the danger was averted. For this prompt action the agricultural interests of the Dominion owe a debt of gratitude to Dr. McEachran the extent of which can scarce be calculated.

[1] Tenth and Eleventh Bulletin of the Bureau of Animal Industry, Washington, 1896, p. 8.

But during the last three years it has been officially declared by the Home Government that pleuro-pneumonia exists in Canada, and as a consequence Canadian cattle are scheduled; that is to say, they are not permitted to pass beyond the port of entry, but must be slaughtered within a few days of disembarkation.

What are the probabilities that this contagious lung plague exists in Canada? The Dominion Government affirms that it is unable to discover the existence of a single affected animal, from the Atlantic to the Pacific. According to its inspectors the country is absolutely free from the disease. Is it possible that they are mistaken, or—the obstinate action of the Agricultural Department forces me to make the suggestion—that they are purposely concealing from the Home Government their knowledge that the disease exist? A little consideration must show that neither of these alternatives can be accepted by any right-minded man. Had the disease been introduced into Canada during the last few years from England or from the States, it might be said with the utmost sureness that the mortality caused thereby would in a very few months have attracted the notice of the farmers, the veterinary profession and the Government; it is absurd to think that it could have remained hid, as it were, under a bushel. We living in this country know often to our cost how every trifling item is seized upon by the local papers, which make up for their poverty and incapacity to reproduce telegrams from foreign parts, by the assiduous working of local news into readable and often thrilling paragraphs. Had the disease existed, the opposition journals, at the least, would have called our attention to the fact.

Again, it must be remembered that important as is the extension of the export trade of this country, the internal trade and preservation of herds in prime condition for dairy purposes are of yet greater importance. For internal reasons, therefore, it is absolutely necessary that the Government makes public any and every outbreak of disease, and schedules affected districts. This is the Government's first care; it is absurd to doubt the veracity of the Ottawa blue books, for were they falsified the first effects would be felt, not in England, but in the Dominion. And yet the secretary of the Imperial Board of Agriculture writes officially in August, 1893: "The fact that the Canadian Government have at present no information as to the existence of the disease appears to the Board to be very far from conclusive. . . . . The possibility that disease should have been irregularly introduced undoubtedly exists." And only within the last few weeks the President of the Department of Agriculture would seem to have more than hinted his firm belief that we have the disease in this country. Speak-

ing for myself, I may say that ever since the outcry concerning possible pleuro-pneumonia in this country has existed, every lung in which appearances have been detected at all resembling the genuine disease has passed through my hands. Of these there have been more than seven, and in not a single case has there been the true disease present. The majority of the cases have been those of purulent metastatic or broncho-pneumonia. In one case a large thorn was discovered impacted in the bronchus and causing intense surrounding inflammation; in another the bronchi contained numerous minute nematode worms, in another the calcified larvæ and eggs of some unknown insect.

Thus I can unhesitatingly affirm that from my own experience the disease is non-existent.

While, therefore, everything points to the absence of the disease within the Dominion how, it may be asked, are we to explain the most suspicious lungs found in cattle exported to the United Kingdom? Either the disease exists here or it does not, and if it does not then the conditions discovered in these lungs have been brought about by some cause other than that which induces contagious pleuro-pneumonia.

As I have already said, the disease cannot possibly exist here in its ordinary contagious form. Of that there can be no doubt. It is absurd also to suggest that we have it here in a latent form. If that were so we should occasionally come across lungs presenting chronic lesions. We never come across such lungs. Our only alternative is that there is some other condition capable of producing lesions in the lungs capable of being mistaken for those of contagious pleuro-pneumonia.

Lesions associated with contagious pleuro-pneumonia differ from those seen in any form of human pneumonia, in the one important peculiarity that the lobules of the organ become widely separated from each other by broad bands, not of fibrous tissue, but of lymph. These bands are, in fact, in the main huge dilated lymph channels filled with thick lymph. The pneumonia is of a lobular type, and on section through an affected organ a mass is found varying from an inch or two across to the larger portion of a lobe of the organ. This is dense, cuts firmly, and on section, both from the existence of these bands previously mentioned and from the fact that lobules or sections of lobules exhibit the disease at different stages, a cut surface presents a characteristically marbled appearance. In general the disease extends to the surface and there is developed a localised pleurisy. On closer examination the alveoli are found filled with exudate, sundry of the vessels exhibit thrombi, and as a result there are areas of

necrosis ; there are other areas exhibiting recent hæmorrhage, others showing hæmorrhagic necrosis of older date.

This is in the earlier stages of the disease ; where the condition becomes chronic, as already stated, the affected area becomes surrounded by fibrous tissue and is cut off from the healthy lung It is of importance to note that whereas in countries affected with the true disease lungs exhibiting these chronic fibroid and encapsuled areas are not infrequently met with, among thousands of Canadian cattle slaughtered at Liverpool, Deptford and Glasgow, not one single instance of the discovery of this stage of pleuro-pneumonia has been recorded. This in itself is strong evidence that the British authorities are mistaken. Undoubtedly the lesions found in the suspected animals are very like those seen in contagious pleuro-pneumonia, more especially to the naked eye. There has been the same marbling present ; in one case there was evidence of necrosis (but only one) and the affected areas of the lung had the same firm feel. In one case at least also a cough was recognised somewhat similar to that forming a symptom of the true disease ; but when we come to examine these lungs microscopically the resemblance is not so close.

(To be continued.)

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

JANUARY, 1896.

THE JOURNAL OF PATHOLOGY AND BACTERIOLOGY.

Upon general infection by the bacillus pyocyaneus in children—E. P. Williams and Kenneth Cameron, Montreal, p. 344.

THE CANADIAN PRACTITIONER.

The surgical treatment of gall-stones—J. F. W. Ross, Toronto, p. 1.

CANADA MEDICAL RECORD.

Artificial lighting of public buildings and private houses, and its effects upon the human eye (continued)—Casey A. Wood, Chicago, p. 159.

DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

Clinical notes on a recent series of surgical cases—Thomas H. Manley, New York, p. 33.

Cases in practice—Frank Hall, Victoria, B.C., p. 38.

Notes on the treatment of enteric fever—C. J. H. Chipman, Ottawa, p. 39.

A new nasal tablet—Murray McFarlane, Toronto, p. 41.

THE MARITIME MEDICAL NEWS.

Appendicitis—J. F. Black, Halifax, p. 1.

Report of two cases—(1) acute inversion of the uterus, immediate reposition, recovery; (2) strangulated hernia, gangrene, rupture, suture, recovery—R. A. H. McKeen, Glace Bay, C.B., p. 9.

LA CLINIQUE.

A propos du cancer du sein, des organes génitaux, urinaires et de la peau—James Bell, Montreal, p. 223.

Une erreur fréquente—J. E. W. Lecours, Montreal, p, 228.

Carie des deux vertèbres lombaires—A. A. E. St.-M., p. 230.

DENTAL COSMOS.

Irritative or reflex trismus—J. S. Ibbotson and W. G. M. Byers, Montreal.

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THE CANADA LANCET.

Six years' experience in abdominal and pelvic surgery—A. Lapthorn Smith, Montreal, p. 175.

Expert testimony—Henry Leffman, Philadelphia, p. 181.

CANADA MEDICAL RECORD.

Artificial lighting of public buildings and private houses, and its effects upon the human eye (continued)—Casey A. Wood, Chicago. p. 207.

A plain talk on the treatment of consumption—A. D. Stevens, Dunham, Que., p. 215.

DOMINION MEDICAL MONTHLY AND ONTARIO MEDICAL JOURNAL.

Relation between chorea and rheumatism—J. W. Shaw, Clinton, Ont., p.

La Clinique.

Considération sur la fièvre typhoïde et sur le traitement par les bains froids—Marc Clergue, Paris, p. 270.

L'Union Médicale du Canada.

Nouvelles observationes de sérothérapie—J. L. Archambault, Cohoes, N. Y., p. 65.

Echo des hôpitaux de Paris—Prof. Demers, Montreal, p. 71.

Tétanos—A. Laurandeau, St. Gabriel de Brandon, Que., p. 76.

De l'orchite chez les prostatiques—A. Guépin, Paris, p. 80.

Journal of Cutaneous and Genito-Urinary Diseases.

Hydroa æstivale—James E. Graham, Toronto, p. 41.

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The Canada Lancet.

Club-foot—B. E. McKenzie, Toronto, p. 218.

Dominion Medical Monthly and Ontario Medical Journal.

Annual address of the Chairman of the Board of Health of Ontario—J. D. MacDonald, Hamilton, p. 257.

Hygiene of Canadian railways, p. 263.

L'Union Médicale du Canada.

Etudes médico-légale—Les aliénés devant la loi (A suivre)—Georges Villeneuve, Montreal, p. 129.

Signes et traitement de la colique spermatique—A. Guépin, Paris, p. 145.

Six années d'expérience en chirurgie abdominale avec résultats ultimes et immediates—A. Lapthorn Smith, Montréal, p. 146.

MONOGRAPHS, Etc.

Electricity as applied to practical medicine—Albert G. Nicholls, Montreal.

Irritative or Reflex Trismus---J. S. Ibbotson and W. G. M. Byers.

The authors report the following cases which were treated in the Montreal General Hospital during the winter of 1894-95:

Case I. (Service of Dr. J. Alexander Hutchison.)—Robert R., aged twenty-three, a fireman in the employ of the steel and iron works, came to the General Hospital on December 11, 1895, complaining of "stiffness in the muscles of the jaw, and inability to open widely his mouth." He said that, five weeks previous to entrance, the right side of his check began to grow painful and the gums of the mouth tender when touched, or more especially when he attempted to eat anything hard. This continued for two weeks, when swelling of the right cheek commenced and gradually increased; and at the same time the jaw-muscles slowly stiffened and finally became so rigid that he could not, without difficulty, masticate his food or speak distinctly.

On entrance, patient was found to be a young man of medium height and well nourished. The acute inflammatory symptoms had evidently subsided in part, but a large swelling of the right side of the cheek was present. This was due to an enlargement of the parotid gland, and hot fomentations were applied, the case being looked upon as one fo non-specific parotitis with closure of the jaw

as a secondary consequence. The case, however, dragged on for a week or so with no improvement, when the teeth were thought of and found to be the cause of the trouble. The upper right bicuspids and first molar were found to be in a carious condition, and elongated ; and the gums in the neighbourhood in a state of subacute inflammation. The third molar was seen in a half-developed condition, appearing through overhanging gums. Below on the same side the third molar was "erupting" and crowded in between the second molar and the ramus of the jaw. The gums, too, in this neighbourhood were inflamed, and overlapping and tender.

On December 29 patient was given ether and the mouth forced open by a gag with considerable difficulty. The upper third molar in carious condition and the lower right third molor in an embryonic stunted state were removed.

Almost instant relief of symptoms was experienced. On the following day the patient could move his jaws to a considerable extent and on January 2, was discharged as cured.

Case II. (Service of Dr. R. C. Kirkpatrick.)—Thos. F., aged fifty-four, a strong, well-built navvy, was admitted to the General Hospital on March 9, 1895, complaining of stiffness in the muscles of the jaw, sudden uncontrollable closures of the teeth, and darting, shooting pains in the right side of his cheek and head.

He gave the following history : Soon after an exposure during a very cold spell of weather, patient was seized on January 2, 1895, with pain and stiffness in the muscles of the jaw, particularly on the right side ; and also with this he suffered from darting, shooting pains in the ramus of the jaw and right side of his face, which extended up to the ear and side of his head. These symptoms gradually increased so that on February 2, patient had to give up work on account of his being unable to take anything but liquid food, owing to the almost entire closure of the jaw, and to the pain which he experienced when he shut his teeth on anything hard.

About January 15, peculiar involuntary spasms of the muscles of the jaw appeared, first noticed when on putting his pipe into his mouth the bowl flew up into his face, on account of the sudden coming together of his teeth. This condition, too, increased in severity and became almost alarming. On one occasion during a very severe closure the two lower incisors were knocked out, and at frequent other times his tongue and cheeks were badly bitten. Sometimes the closures came on spontaneously, and always when an attempt was made to put a pipe or finger or probe into his mouth.

Condition on entrance : A well-built, shaggy-bearded man ; hair turning gray ; nutrition good.

Complains of tenderness and stiffness in the muscles of the jaw. particularly on the right side, with a dull pain in that region, and occasional shooting, darting pains in the side of the face and head, He cannot open his mouth widely, and for this reason has to live on soft food. A more serious trouble is the spasms of the jaw spoken of above, causing the teeth to come together with a snap. These come on when an attempt is made to put anything into his mouth, but very often without any cause at all apparent.

Examination.—Swelling of the submaxillary gland on both sides, and slight thickening of the right ramus of the jaw to about its middle third ; corners of the lips and the tip of the tongue show marks of the teeth. Patient can only open his mouth to about one-third or one-fourth its normal extent. Breath very foul. Teeth present an elongated and extreme carious condition of the first and second molars of the lower right side, the gums around which are filled with salivary calculi. On the lower left side are roots, remnants of the first, second and third molars, all in a state of ulceration. The lower incisors are wanting, and there is partial fracture of the lower front alveolar process, owing to the severe spasm mentioned above. On March 20, the right lower first and second molars were removed, the roots of which presented an exostosed condition ; also remains of the first, second and third molars on the lower left side. In front, below, a small piece of necrosed alveolar process was taken away, and above on the left side, the upper first bicuspid root in badly ulcerated condition was extracted.

The patient's progress after the operation was most satisfactory. On March 28 a bedside note records that he had fully regained the use of the muscles of the jaw, and had had no further spasms. A few days after this, however, a slight return of this trouble occurred ; but the removal of a small piece of loose necrosed bone from the lower right ramus speedily set matters right again.

Spasm of the muscles of the jaw as a result of reflex irritation from local conditions in or about the mouth receives more or less attention in all the standard works on general and dental surgery. The authors conclude that although spoken of in the literature as being of comparatively frequent occurrence, the condition is in fact rather rare, at any rate in as marked a form as the cases cited. Moulin, the only authority who dwells on the point, mentions that the affection is most common between the ages of twenty and thirty-five. All authorities speak of the eruption of third molars as a cause, while but one of them recognizes caries of the teeth as an etiological factor.

The affection, too, is generally described under some general heading, such as "closure of the jaws," or "spasmodic closure of the jaws," along with other conditions, which as regards the *modus operandi*, bear no relation whatever to the cases here reported.

Inasmuch as the factors in the production of the phenomenon are well known, and the *rationale* understood, it is proposed that it should be isolated as an entity, and given a name; and the term "Irritative or Reflex Trismus" is suggested.

Hydroa Æstivale---James E. Graham.

Two cases of this somewhat rare affection were reported before the American Dermatological Association at the meeting held in Montreal, September, 1895. The first case, was a girl who had suffered from the age of four until her eighteenth year. The eruption commenced as small red spots on the face and hands, they grew larger, became vesicular and then pustular, attaining their full size in two or three days, when a dark spot appeared in the centre of each, after which a scab formed over the whole surface. These dried up and fell off in a few days. The whole duration of each crop of vesicles was about nine or ten days, and superficial cicatrices were left. During the summer, successive crops of this eruption appeared, always following exposure, either to the direct or reflected rays of the sun. In winter, however, the eruption was much less marked. Nearly every form of application seemed to aggravate the disease. This condition remained the same until her thirteenth year, when menstruation commenced. From that time until the eighteenth the eruption had gradually disappeared, and at that age entirely ceased and had never returned.

The second case, a female, aged twenty-five, came under the writer's observation in August, 1895. At the age of ten, the patient had had her leg amputated for a chronic swelling of the left knee joint, probably of tubercular character. The eruption commenced when she was eleven years old, and the phenomena during the fourteen years had changed very little, and were described as follows: When she was exposed to the sun's rays for about twenty minutes or half an hour she noticed a burning sensation on the unprotected parts of the body. This would be followed by extreme swelling and the formation of small water blisters. These in two or three days would become yellow, and scales would form on the surface. These were not thick, and would speedily dry up and fall off, leaving a congested surface which would soon return to the normal condition. The pustules, as far as could be learned, were never umbilicated. The crop of pustules varied in duration according to the severity of the attack. The

process in some attacks did not last longer than eight or ten days, whereas at other times it lasted two or three weeks. The swelling was greater on some occasions than on others, sometimes it almost closed the eyes and produced a good deal of deformity of the features. The attacks were accompanied by general malaise, coryza, sleeplessness and anorexia. The eruption would occur on any part of the body exposed to the sun. It occurred in the winter just as in the summer, if the sun was shining. If she sat near a window the eruption would appear, even if the sun was not shining on her. A thick veil always prevented the action of the sun. She was afraid to go out even on a cloudy day, and had been kept a prisoner in the house for the last fourteen years, at least during the summer, only going out in the evening after the sun had gone down.

The majority of writers upon the subject attribute the cause of the eruption to the action of the chemical rays upon the skin. Widmark concludes from his experiments that the ultra-violet rays act with great intensity on the surface of the body, but the writer of this paper considers that the difference between the effects produced by the rays in the summer and in the winter, in these cases, would lead him to believe that their action is not altogether due to the ultra-violet rays, but that the heat rays play also an important part. In the second case, the electric light had no effect, although in it the chemical rays predominate. How the rays of the sun produce such deep lesions in so short a time cannot easily be explained by direct action on the tissues without the aid of the vaso-motor nerves. The inflammation, then, is probably of a reflex character. Whether a toxin exists in the tissues or not has not been proved. The indications for treatment are, to restore to the tissues that power of resistance which exists in ordinary conditions, and to so protect the skin that those rays which would act injuriously are absorbed.

Kenneth Cameron.

Reviews and Notices of Books.

The Pathology and Surgical Treatment of Tumours. By N. Senn, M.D., Ph.D., LL.D., Professor of the Practice of Surgery and Clinical Surgery, Rush Medical College, Chicago. W. B. Saunders. Philadelphia, 1895.

When an author has evidently expended a great amount of time, and has accumulated an enormous amount of material, it is painful to have to deliver an unfavourable verdict upon the results of his labour; yet in the case of the book before us, it is impossible to do otherwise: it is impossible to recommend a work such as this.

While Dr. Senn's book is crowded with material, that material is arranged with an utter lack of perspective; the pages bristle with names of observers, but no attempt is made, or next to none, to indicate the value to be attached to the observations. Cheek by jowl with the most recent theories of carcinoma, for example, we have the theories of thirty years ago, without the slightest indication being given of the relative value of these theories or of their chronological sequence. Virchow's earlier theories are referred to as though he still held to them and as though now-a-days they possessed the same value as they did at their first publication. To hurl thus a mass of ill-assorted material at the head of the reader is not to write a book, it is to make a book, and that withal of the most pernicious type; and the pity of it is that had Dr. Senn taken more time, and had he thought out his subject more, he could have supplied a crying want. As it is, the work is only useful in so far as the worker may occasionally from the mass of facts given extract something that is suggestive; but even its value in this direction is limited, because scarcely a single reference is given to the literature of the subject; given the name of an observer the worker is left to hunt out the reference for himself. Possibly the surgical portions of the work are more satisfactory, but surgery and pathology are throughout so intermingled that where the pathological portion is so poor it is doubtful whether the excellence of the surgical part can in any way be held to outshine the other defects.

We could further dilate upon yet other failings of this work; for example, upon the ambiguities that are introduced by the author's most dubious limitation "inflammation" to the changes produced by certain micro-organisms, a limitation which is stated in the early part of the work, but is not adhered to throughout; again, upon the failure of the photographic reproductions scattered plentifully through the work to illustrate satisfactorily the conditions mentioned in the text, and again, upon the inadequate recognition of those who prepared and diagnosed the material from which many of the photographs were taken. But we

have said enough to show that the work is not one to be recommended, and as unfavourable criticism is unpleasant we are unwilling to say more. A.

A System of Surgery. Edited by Frederic S. Dennis, M.D., assisted by John S. Billings, M.D. Volume III. Philadelphia: Lea Brothers & Co. 1895.

This volume is devoted mainly to the surgery of special parts of the head and neck. There are also articles on the skin, the genito-urinary system and syphilis.

The article on genito-urinary diseases contains a chapter on impotence and sterility which is well worth reading. The writer very properly considers these conditions as being worthy of recognition and treatment and states his case in so many words.

R. W. Taylor writes an excellent article on syphilis. He insists upon the fact that the primary lesion is often multiple, and that "a multiplicity of lesions is only mildly presumptive of their being chancroids." He says that the period of primary incubation is rarely over thirty or forty days, and more often the former. In speaking of the treatment of this disease he says that, as a rule, it should begin at the time of the evolution of the secondary symptoms, not before. He regards the proto-iodide of mercury as the most convenient form of administering this drug in the early stages of the disease, but after the first few months prefers to use inunctions. An important point which he raises is that the mercury should be given intermittently.

In writing of cancer of the tongue, Henry H. Mudd adheres to the opinion, which is now so generally held, that cancer "is primarily local, and as such must receive prompt and efficient treatment." He points out that the tongue is not essential to deglutition, to speech, nor to taste, and that the removal of a part or of the entire tongue is neither difficult nor especially dangerous. He is of the opinion that partial excision is justifiable in certain cases. He prefers the use of the knife and scissors to the ecraseur or galvano-cautery as less likely to produce sepsis and secondary hæmorrhage. All enlarged glands should be removed, and for this purpose an external incision is preferable. He appends elaborate tables showing the mortality and the percentage of recurrences.

The subjects are in the main well treated, and the articles are essentially practical. The pathology, and especially the bacteriology, of the diseases is not gone into as fully as one might expect in such a work; as for instance we look in vain for the cause of the suppuration in buboes, and the bacteriology of empyema is given very briefly. The article on necrosis of the jaws is written in a very involved manner and consequently is difficult to understand. On page 490, under tuberculosis of the kidney, we are referred to another place for further information, but the number of the page has been omitted.

On the whole, however, it is an excellent volume, and the work is one

which we can strongly recommend. The illustrations and letter-press are both good. the publishers having performed their part thoroughly well. R. C. K.

An American Text-Book of Surgery, for Practitioners and Students. By Charles H. Burnett, M.D.; Phineas S. Conner, M.D.; Frederic S. Dennis, M.D.; William W. Keen, M.D.; Charles B. Nancrede, M.D.; Roswell Park, M.D.; Lewis S. Pilcher, M.D.; Nicholas Senn, M.D.; Francis J. Shepherd, M.D.: Lewis A. Stimson, M.D,; William Thomson, M.D.; J. Collins Warren, M.D., and J. William White, M.D. Edited by William W. Keen, M.D., LL.D., and J. William White, M.D., Ph.D. Second edition, carefully revised. Philadelphia: W. B. Saunders, 925 Walnut street. 1895.

The appearance of a second, three years after the issue of the first, edition is an indication of the success of the book. It has been much improved and brought up to date. A new section has been added on acromegaly and many chapters largely rewritten. A full description is given of the effect of modern small-arms in military surgery. Very good descriptions are given of the modern treatment of septic diseases of the brain and its membranes resulting from middle ear disease, and of the Hartly-Krause method of removing the Gasserian ganglion. In the chapter on the surgery of the respiratory organs a description and a clear plate are given of Schede's operation of thoracoplasty.

Witzel's gastrostomy, which has given such good results, is fully described. The sections dealing with fractures and dislocations, appendicitis, the radical cure of hernia, and the more recent methods in amputations of the breast have been enlarged and more fully described. The chapter on displacements of the uterus has been largely rewritten.

The better results obtained by the more aggressive treatment of fracture-dislocations of the spine is clear and concise. The chapter on gall-stone surgery, while hinting at the more recent advances made in this important department of abdominal work falls short of what might have been expected, and the removal of gall-stones from the common and hepatic ducts is only mentioned. The subject is worthy of more space, and a detailed description of the removal of gall-stones from the ducts would have been much appreciated. The book is large and heavy to hold, and in a future edition we hope the authors may see their way clear to divide the book into two volumes, or else furnish each purchaser with a book-holder. The work, however, is deservedly popular with both students and practitioners and is one that can be read and studied with great satisfaction. G. E. A.

A Manual of Operative Surgery. By Lewis A. Stimson, B.A., M.D., and John Rogers, Jr., B.A., M.D. Third Edition. Philadelphia: Lea Brothers & Co. 1895.

A neatly gotten-up book, fully and clearly illustrated. So large a field is covered, including the operations in general surgery, gynæcology, as

well as symphisiotomy, that the descriptions are necessarily brief. The chapters on brain surgery and the surgery of the abdomen are clear and as a rule up to date. The operation of pylorectomy, most fully illustrated and described, is not the most approved of at present by many abdominal surgeons. The directions for trephining the mastoid antrum in septic lepto-meningitis are too meagre to be practically useful. The chapter on hernia is good. Bassini's operation is fully detailed and illustrated, and is probably the best operation we have for the radical cure of inguinal hernia The book contains an immense amount of information in a very small space. But it is imperative that a surgeon should have more information concerning most operations than is contained in this book before he is in a position to do justice to his patient or to himself. It is admirably adapted, however, to be a book of ready reference in an emergency. G. E. A.

The Pathology and Treatment of Venereal Diseases. By Robert W. Taylor, M.D., Clinical Professor of Venereal Diseases at the College of Physicians and Surgeons (Columbia College) New York; Surgeon to Bellevue Hospital, and Consulting Surgeon to City (Charity) Hospital. With 230 illustrations and seven coloured plates. Philadelphia: Lea Brothers & Co. 1895.

In the introduction the author gives a history, so far as is known, of the appearance of venereal diseases, showing very clearly that they were all well known before the return of Columbus from his first trip, 1493. Then follows a brief statement of the observations which finally led to the settlement of the great controversy between the unicists and the dualists.

The chapter on the anatomy and physiology of the penis, etc., is very complete and well illustrated.

Gonorrhœa in the male and female receives the full consideration which its great importance calls for, and the author's treatment of this large subject is masterly and instructive. The sequelæ and complications are fully discussed. The author is inclined to doubt the magisterial statement of the Neisser school that the discovery of the gonococcus settles forever the etiology of gonorrhœa, and from his large experience quotes some remarkably interesting cases, which tend to show that other germs may be etiological factors in this disease. We would especially commend this chapter to all family and other physicians and surgeons who undertake the treatment of gonorrhœa. In treatment the author is practical and conservative and does not altogether approve of some of the more recent methods.

Syphilis is treated in a masterly way. The student or practitioner will find in this book a most full, complete and trustworthy guide on all points connected with this subject.

Taken altogether it is a most valuable work and one that can be trusted as up to date, and yet possessing the conservatism of wisdom and of a long experience in a large field. G. E. A.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, January 23rd, 1896.

F. G. Finley, M.D., First Vice-President, in the Chair.

Unusual Form of Salpingitis.

Dr. C. F. Martin said: The specimens which are presented to-night were removed by Dr. William Gardner at an operation some weeks ago. They consist of two Fallopian tubes which are considerably dilated, and their walls, which are greatly thickened, show a ragged, somewhat shreddy inner membrane.

On section into them there had exuded in both cases clear watery fluid, not bearing any resemblance to pus, but rather having the characters of fluid contained in an ordinary hydrosalpinx. There was, in addition, some granular contents which microscopically presented no evidence of cellular structure. Examination of the wall showed chronic progressive thickening, with numerous small round-cell aggregations at various parts of the different sections. There was no evidence of tuberculosis.

The conclusions to be inferred from the conditions found are, that the case was one of old pyosalpinx, that the cellular elements of the exudate had become absorbed and left behind merely a clear fluid. Such conditions are mentioned by many observers, and there would seem to be sufficient evidence from microscopic appearances to justify this belief.

Dr. W. Gardner said that the case had been unusual also in its history. The patient from whom the specimens had been obtained was a woman of 35, healthy, with the exception of profuse menstruation, up to within eight weeks previous to the operation. At that time she was seized with sudden severe pain in the pelvis, "cramps," vomiting and fever, and was confined to bed up to the time of the operation. On admission to hospital she had an evening temperature of two to four degrees above normal, and on external examination a tender mass could be felt in the right side of the pelvis, but it was not large enough to project the abdominal wall. On bimanual palpation the uterus was found to be fixed in the pelvis by masses, of which that on the right side was the larger. The operation most suitable for dealing with the case, Dr. Gardner stated, he had not been

able to decide upon until the patient was under ether. Then he chose an abdominal incision on account of the firm fixation of the uterus, made out under anæsthesia. The operation was unusually difficult owing to the dense adhesions and involvement of the intestines. The appendix vermiformis was found in the mass and removed. After removal of the masses an extensive bleeding surface was left which he packed with gauze. The case had not done well, convalesence had been slow and a suppurating sinus and fæcal fistula had formed. The condition met with, he felt, would have given better results if it had been dealt with by a vaginal incision, the better drainage secured in that way being the great advantage. In view of the difficulties already described, a double operation, part of the work being done by the vagina and part by the abdomen, might have answered best. The microscopical examination of the tube had been disappointing to him. There had been no evidence of any form of septic infection, puerperal, gonorrhœal, or other, and the macroscopic appearances had led him to expect the presence of tubercular disease.

Dr. Lapthorn Smith thought that the amount of thickening and the dense adhesions could not have been formed during the short time that the patient had been complaining of pain. He thought that it was more probable that she had become infected at the time of her marriage, and that the ends of the tubes had become sealed, producing sterility.

Dr. G. E. Armstrong asked Dr. Gardner what his experience was in relation to the connection between disease of the uterine appendages and the appendix vermiformis. In this case they were incorporated in the same mass. Dr. Armstrong had operated several times for appendicitis and found pus in the pelvis in connection with the ovaries and tubes. A French anatomist has described a layer of peritoneum passing from the neighbourhood of the appendix to the tube and stated that it was not uncommon for septic infection to pass down along this to the pelvis and set up local trouble there. He would like to know if any bacteriological examination had been made. Dr. Armstrong thought the abdominal method was to be preferred in these cases, from the fact that it offered an opportunity for the removal of a diseased appendix, if such were present.

Dr. Gardner, in reply to Dr. Armstrong, said that his experience in finding the appendix involved was small. He did not believe that the condition was common.

Aortic Aneurism.

Dr. H. A. Lafleur exhibited the specimen, which was from the case alluded to by him on the 8th of March, 1895, and he felt would

be of interest. The history of the case briefly is as follows: The patient, a man aged 69, had suffered from aortic insufficiency for fifteen or sixteen years, and had exhibited the well-known signs of that disease. A short time previous to the date on which he had referred to the case, symptoms of pressure upon the trachea had appeared, and Dr. Birkett, on laryngoscopic examination, had detected an aneurism as a small pulsatile tumour projecting into the lumen of the trachea. The symptoms then subsided and the case again became one of aortic regurgitation merely. There had been no signs of intra-thoracic pressure, no increased area of dulness and no obvious pulsation beyond that due to the enlarged heart. Tracheal tugging was detected after the aneurism had been made out by Dr. Birkett.

The specimen showed a little projection into the trachea, less marked post-mortem than it had been during life. Dr. Lafleur thought that the early deposition of lime salts in the walls of the aneurism had prevented its growth, the whole expanded portion of the vessel being walled in by calcified masses.

Dr. F. G. Finley asked if there had been any pressure by the aneurism on the left bronchus, or if, in any way, the explanation given by the late Dr. MacDonnell of tracheal tugging was borne out.

Dr. Lafleur, replying to Dr. Finley, could not say that there was any pressure upon the left bronchus. He was not prepared to say how the tugging in this case had been produced, but the aneurism was closely and intimately related to the trachea. The tugging could not have been due to the small aneurism, as here pulsation was directed towards the centre of the trachea, not downwards. In reply to Dr. McConnell he stated that there had been no difference in the radial pulses.

Parotitis in Pelvic Disease.

Dr. W. S. Morrow read a paper on this subject, which appeard last month.

Dr. Wm. Gardner had only seen two or three cases of enlargement of the parotid after abdominal operations; one, however, following extirpation of the uterus for fibroid and procedintia, was very severe. He remembered having read only one paper on the subject, and that was by Goodell, entitled, "Parotitis following Ovariotomy." Probably the reason so little had been written about it of late years was that better and cleaner surgery was being done than formerly. He always looked upon this condition as due to some form of infection.

Dr. J. B. McConnell, referring to the first instance related by Dr. Morrow, said he could not understand how a pelvic peritonitis could exist and have such a speedy cure. He thought that possibly it was

an attack of grippe with manifestations in both the abdomen and the parotid gland. He thought the fact that parotitis in these cases was usually unilateral would point more to bacterial than to reflex origin.

Dr. F. A. L. Lockhart was much interested in the subject of Dr. Morrow's paper, as it was one that was causing considerable discussion in medical literature at the present time. He referred to a case of double suppuration of the parotids reported in Toronto, as having followed vaginal extirpation of the uterus for cancer. The case had done well until the tenth day, when there was a rise of temperature and swelling of the parotid; the second gland became infected also, and both ultimately suppurated, the patient dying on the forty-eighth day after operation. The treatment employed had been stimulants and iron. In the discussion following the recital of this case several observers reported parotitis occurring on the third or fourth day after operation, but in no case had the disease commenced as late as the twelfth.

Dr. Wesley Mills said that we were now beginning to understand something of the physiology of the ductless glands, and the relations to one another of the different organs of the body. Whatever might be the cause of the trouble we must not lose sight of the connection between enlargement, etc., of certain glands in the throat and changes in the generative organs. When we deal with groups of organs histologically alike we can understand why changes in the one may affect the other. Whether the enlargement of the parotid was due primarily to vaso-motor effects he could not say, but at least it was probable. The multiform effects of "taking cold" were associated with vaso-motor changes. The reason why the parotid was affected and not the other salivary glands might be that there was a different nerve supply. It was to be remembered that the nevous system influenced metabolism otherwise than through the vaso-motor nerves.

Dr. Lapthorn Smith had ten years ago attended a medical student for gonorrhœal orchitis, which was followed by parotitis. He thought that the connection was well known. He quoted two cases, one a lady who developed six weeks after confinement a well-marked inflammation of the parotid. Another had acute peritonitis with pus tubes, followed by parotitis, which disappeared when the pus was removed. The fact that the breasts swell sometimes, when menstruation was not taking place properly, showed the marked nervous relation between these organs and the ovaries, and bore out what Dr. Mills had said.

Dr. H. A. Lafleur thought that in discussing the cause of parotitis one should not forget that there was no other instance in the domain

of pathology in which inflammation was caused by excitation through the nervous system. He thought here one must first exclude every other possible cause.

Dr. Jas. Stewart stated, at Dr. Martin's request, that he had produced inflammation of the skin from simple hyperæmia to blistering by suggestion under hypnotism.

Dr. W. F. Hamilton referred to a case which he had had, an old lady of 82, with an advanced abdominal tumour, connected probably with the uterus or ovaries. Five days before death a symmetrical parotitis of stony hardness, with intense tenderness, had set in. He had regarded it as due to septic absorption from the mouth, which was dry and very foul for some time before death.

Dr. F. G. Finley remarked that inflammation of the parotid was not uncommon in typhoid fever, but he had always been inclined to attribute it to septic infection from the mouth.

Dr. W. D. Morrow, replying to Drs. Gardner and Lafleur, said that Paget in his paper mentioned fifteen cases of parotitis secondary to disease outside the abdomen and pelvis, and in all these cases their septic nature could be inferred from other symptoms present; whereas in one hundred and one cases having their original seat in the abdomen or pelvis there were signs of septic infection elsewhere in less than ten per cent., although there was local suppuration in the parotids in something over fifty per cent. of the cases where its presence or absence was specially noted. These differences had to be explained. Pain and swelling of the parotid gland resembling parotitis were set up by very slight causes in some people. Jonathan Hutchison related the case of a woman where the parotid glands became swollen on fatigue and the swelling disappeared rapidly on resting. Dr. Morrow thought that this was explained by the anatomical structure of the gland: with large blood-supply and a tense capsule it was not surprising that hyperæmia caused inflammation.

In reply to Dr. McConnell he gave further particulars of the cases, showing beyond question the correctness of his diagnosis.

In reply to Dr. Lockhart he said that Paget's notes showed the time elapsing before the onset of parotitis to be from three days up to twelve.

Dr. Mills had suggested experiments on animals, but in view of the fact that the parotid glands and other organs involved were frequently removed for disease in the subject, it was hard to see what additional light could be gained in this way.

Dr. Finley had referred to its occurrence in typhoid fever and suggested that here it was due to the sepsis. It had been shown conclu-

sively in England that it was proportionately greater in typhoid than in other fevers and Paget's explanation of this was that in typhoid the local lesion was found in the bowel.

Hodgkin's Disease.

Dr. A. E. Vipond and Dr. C. F. Martin read a report of this case, which will be published next month.

Stated Meeting, February 7th, 1896.

A. D. Blackader, M.D., President, in the Chair.

Disseminated Sclerosis.

Dr. F. G. Finley presented a patient with this disease and read a report of the case, which will be published later.

Intra-Cranial Neurectomy.

Dr. G. E. Armstrong showed a woman upon whom he had successfully performed this operation. (See page 666 of the March number.)

Dr. James Bell said that he had shown a woman two and a half years ago before the Society, on whom he had operated for the removal of the Casserian ganglion for inveterate neuralgia of over twenty years standing. In his patient the infra and supra-orbital nerves had previously been stretched, with the result of giving only temporary relief. The result of the operation had been perfect freedom from pain, a small anæsthetic area remaining in the cheek and inability to masticate on that side. (This was the report received two years after the operation from the patient herself.) At the time he had undertaken it, this operation of Hartley and Krause was comparatively new; only a small number of cases had been operated upon and the operations had been too recent to allow of a fair judgment of the results. Now a considerable number of cases had been operated upon by this method, and a sufficient length of time had elapsed to justify an opinion upon the results, which could be said to be excellent. So far as he knew, there had been no return of pain in any of these cases; the deformity was almost nothing and the disabilities trifling. No other operation, except that of Mr. Rose, which aimed at effecting the same results by another method, had yielded more than very temporary relief.

This operation is infinitely preferable to that of Mr. Rose, in which the ganglion was approached from the base of the skull behind the pharynx.

A few points in the technique which Dr. Bell considered worth mentioning were, (1) to enlarge the space for entrance to the cranial cavity by cutting away a portion of the temporal bone below the base

of the flap posteriorly down to the level of the zygoma with rongeur forceps. This also provided a suitable drainage space when the flap was replaced; (2) the hand of an assistant he had found much more satisfactory in retaining the brain and keeping it out of the way than any form of metal spatula. Escape of the cerebro-spinal fluid, which frequently occurred by accidental wounding of the membranes, was also a great advantage, as it allowed the brain to be pushed aside much more readily. In the case to which he had referred, so much pressure had been employed in displacing the brain that he had expected it to be followed by cerebral symptoms, but no ill effects had been observed.

Professor Roentgen's New Method of Photography.

Prof. Cox, of McGill University, exhibited several plates and photographs obtained by this method. (See page 661 of the March number.)

Extirpation of the Tonsil for Malignant Disease.

Dr. G. E. Armstrong presented a patient from whom he had removed one tonsil and described the operation, an account of which will be published later.

Specimens Illustrating Medico-Legal Pathology.

Dr. Wyatt Johnston exhibited specimens from the following cases:

1. Fracture of the skull produced by a hammer, which was also shown.

2. Homicide by cutting the throat. The specimen itself, with photographs, and experimental lesions of the vessels of the neck and of the vertebræ, made with scissors, were shown.

3. Homicide—revolver wounds of the head, neck and chest. Shooting experiments showing the distance at which the shots were fired.

4. An old bullet wound of the skull, with consecutive lesions of the meninges and localized softening of the brain. The symptoms were mania followed by dementia.

5. Fracture of the skull in a railway accident.

6. Fracture and fissures of a fœtal skull.

7. Thrombosis of the abdominal aorta, with inversion of the intima, following a crush of the abdomen.

8. Laceration of the intercostal muscles without fracture of the ribs in a crush of the chest.

9. The relative extent of the injuries to the muscles and skin produced in cases of crushing.

10. Photographs showing lesions in the Demers and Gauthier homicide cases.

Fœtal Eventration.

Dr. W. W. ALEXANDER shows a specimen of this monstrosity, the report of which will be published next month.

Dr. A. L. de MARTIGNY asked if the missing portion of the leg had been found. The appearance of the stump suggested amputation by the cord.

Dr. ALEXANDER answered that he had not found it.

Stated Meeting, February 21st, 1896.

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

Extra-Uterine Fœtation—Dermoid Cyst.

Dr. WYATT JOHNSTON showed for Dr. Alloway the following specimens:

1. An extra-uterine fœtation sac the size of an egg with a thick wall showing numerous adhesions; the embryo was not present, but chorionic villi were found.

2. A case of extra-uterine fœtation, in which the embryo was in good preservation; the date was about the second month of gestation.

3. A dermoid cyst showing teeth, hair, and possibly a rudimentary mamma.

Dr. Johnston called attention to the fact that the presence of a mamma within a dermoid cyst was consistent with the morphological theory that the mamma was merely a modified sebaceous gland, being derived from the ectoblast.

Dr. T. JOHNSTON-ALLOWAY, referring to the last case of ectopic pregnancy shown by Dr. Johnston, said it was an extremely interesting case, on which he had operated the same day. The patient, a woman who had been a widow for six years, had married again last year and had missed two periods. Six weeks previously she suffered severe abdominal pain, and losing consciousness fell upon the floor. The family physician was sent for and found abdominal tenderness and Douglas' pouch filled with a fluctuating mass, so the patient was put to bed and kept there until she was able to travel. On entering the hospital her pulse was between 130 and 140 and she was extremely anæmic. Examination revealed a mass in the right iliac region running up across the abdomen to the hypogastric region. There was moderate tenderness. It was not thought necessary to operate the same night, so stimulants were given freely. On advice of the anæsthetist, at the operation, as the heart began to fail, she was not put in the Trendelenberg position. On opening the abdomen the omentum was found adherent to the tumour, which seemed to be firmly

cemented to the parietal peritoneum. After some difficulty Dr. Alloway reached the ovarian artery, which he ligated at the right corner of the uterus, then separating the adhesions, he got into the main cavity. The way in which the condition had formed was probably from rupture of the tube six weeks previously, and nature had supplied a fibrous wall which had prevented general fatal hæmorrhage—thus it did not become general, but encysted. After having tied off the artery he proceeded to clear out the clots and debris. The patient by this time was pulseless, only the respiration going on, so he packed the cavity with gauze to prevent oozing, although there had been no fresh hæmorrhage during the time the abdomen was open—*twelve minutes*—and the patient did not suffer at all from shock.

Necrosis of the Jaw.

Dr. James Bell exhibited the specimen, the report of which will be published later.

Gall-Stone Specimens.

Dr. James Bell exhibited gall-stone specimens from six cases upon which he had operated during the previous six weeks.

1. A single round stone about three-quarters of an inch in diameter, which he had removed from the ampulla of the common duct, partly within the walls of the duodenum. The patient, a gentleman aged 52 years, had suffered from complete obstruction of the common bile duct for twelve months. The jaundice was intense, the colour of the face being a dark bronze, the urine very dark and the stools devoid of colour. He had fallen off in weight in the year from 225 to 140 pounds. For four or five years previous to the complete obstruction to the outflow of bile, he had suffered from attacks of biliary colic. On opening the abdomen the stomach, duodenum, colon, liver and omentum were all matted together with dense, firm adhesions, so that the bile ducts were exposed only after a very tedious and difficult dissection. The gall-bladder and cystic duct were shrunken almost to the point of obliteration, while the common duct was dilated to the size of the index finger. A longitudinal incision was made into the duct, extending into the muscular wall of the duodenum, directly over the stone, and the stone removed. There was a gush of bile from the incision, which was arrested by compression of the duct on the hepatic side. The wound was closed by a row of interrupted sutures, and supplemented by a double row of Lembert sutures. A drainage tube was retained in the wound for several days, but there was no escape of bile. The progress of the case after operation was uneventful, with one exception. For one week after operation there was no

diminution of the jaundice and no evidence of bile in the stools. After this, however, bile was passed freely and the jaundice rapidly disappeared.

This experience led Dr. Bell to conclude that the patency of the orifice of the duct should not be taken for granted, as was generally done, but that it should be demonstrated before closing the wound. The patient returned to his home at the end of four weeks and has since been rapidly regaining his strength and increasing in weight.

2. A small stone (the size of large pea), from the cystic duct. This patient, a nurse aged 35, had been engaged in nursing a case of typhoid fever, when she became ill and feverish and concluded that she had contracted the disease from her patient. She was admitted to the Royal Victoria Hospital under this supposition. She soon developed some septic symptoms, with localized swelling and tenderness in the right hypochondrium, and was transferred to the surgical side. The more urgent symptoms soon disappeared and a swollen tender gall-bladder could be recognized. Cholecystostomy was done on the 16th of January and the small stone found impacted in the cystic duct. On aspirating the gall-bladder, after isolating it in the wound, a clear viscid fluid first flowed, then flaky sero-pus and finally pus. Subsequent history uneventful.

3. Four stones removed from the gall-bladder of a lady aged 37, who had suffered for four or five weeks from acute localized symptoms, which had suggested a diagnosis of appendicitis. There was a history of attacks of biliary colic extending over a number of years. The four stones were so arranged as to form a conical shaped mass, the apex of which lay in the neck of the cystic duct. There were no adhesions, the operation (cholecystostomy) was simple and the subsequent progress uneventful, except for a phlebitis of the right leg, which developed about a week after operation.

4. 135 facetted stones removed from the gall-bladder of a woman aged 27. There had been attacks of biliary colic at the age of 13. Present illness began in December, 1895, and was of an acute inflammatory character, localized in the side, and suggested appendicitis. On opening the abdomen, the under surface of the liver was found firmly adherent to the stomach, duodenum, colon, and omentum. The base and inferior surface of the gall-bladder was fused into the greater omentum as a hard inflammatory mass. On separating this mass many stones rolled out, and those in the neck of the bladder and cystic duct were removed with difficulty. Great difficulty was experienced in attaching the imperfect gall-bladder to the parietal peritoneum. The subsequent history was uneventful. There was

only a very slight flow of bile from the gall-bladder on a couple of occasions.

5. A single large, soft stone from the gall-bladder of a woman aged 55 years. There had been a history of biliary colic, beginning at 15 years of age and continuing for a number of years and then ceasing. Recently she had suffered from severe chills, high fever, and at times a slight jaundice. Cholecystostomy February 15th. No adhesions, and the distended gall-bladder contained, contrary to expectation, only pure bile. Subsequent history was uneventful.

6. A man aged 55, intensely jaundiced and cholæmic, was admitted to the Royal Victoria Hospital with a history of sudden onset of jaundice six weeks previously. Obstruction to the outflow of bile was complete. At the operation, which was extremely difficult on account of the adhesions, the gall-bladder and ducts were found empty, shrunken, and beaded with hard nodules. The gall-bladder was opened and several of these nodules examined. They consisted of hard fibrous tissue (apparently cancerous). The lymphatic glands in the neighbourhood were also enlarged and indicative of cancerous infiltration. On this account the operation of cholecystectomy, which had been contemplated, was abandoned. Recovery from the operation, which was prolonged and difficult, was uninterrupted.

The Diagnosis and Treatment of Septic Infection in Puerperal Cases.

Dr. D. J. Evans read a paper by this title, which will be published next month.

Dr. A. Lapthorn Smith thought that the paper was above criticism. Every word in it was true, as far as he knew, and if all the directions were carried out the death rate from puerperal septicæmia would be materially lowered. He then read conclusions which he had embodied in a paper read before the American Gynæcological Society three years ago, which coincided entirely with the views expressed by Dr. Evans.

Dr. F. A. L. Lockhart wished to lay special stress on one point, and that was the use of antiseptics in midwifery. He thought that even at the present day too many practitioners were either careless or ignorant in this respect, basing his opinion upon a discussion which took place some time ago, in which one speaker stated that he considered antiseptics in the lying-in-room to be injurious, and that he did not always even wash his hands before examining a patient in labour. Another point was in using solutions sufficiently strong to be of service; thus a weak solution of permanganate of potash, which would not stain the tissues, was powerless as a germicide and lulled the

physician relying upon it into a false sense of security. Allowing the patient to sit up in bed, as recommended by Dr. Smith, he thought dangerous.

Dr. J. Alex. HUTCHISON advocated the use of permanganate of potash, and referred to three cases of septic fever in which its use had been followed by good results.

Dr. D. F. GURD said he had had a thousand cases of midwifery and had never given an intra-uterine douche. Among these there had only been four cases of fever, in two of these nervous influences and a morbid fear, for some months previous to parturition, had been a factor in the cause (all recovered). As a rule he did not give vaginal injections, but trusted to quinine and stimulants. He was most careful about the patient's clothing and bedding being clean.

Dr. F. BULLER said that though now an ophthalmic surgeon he had had at one time a large experience in midwifery practice, and that he had never used all the precautions spoken of by Dr. Evans, and he did not have many mishaps. He thought that 99 per cent. of women would get well if left strictly alone. That non-interference does not refer alone to midwifery, but to general surgical work, was borne out by his experience in a military hospital. He had observed that it was the practice of the surgeons to put a probe into every wound, with the result that there were numerous cases of erysipelas and pyæmia. Noting these facts he never interfered unnecessarily with the wounds under his care, and he never had a case of erysipelas or pyæmia.

Dr. EVANS, in replying, said that it was not his practice to disinfect the vagina unless there was evidence of leucorrhœa or gonorrhœa. He allowed his patients to sit up when there was good, firm uterine contraction, and he had never yet seen any trouble result. In irrigation he did not think that the kind of solution made much difference, the chief points being the use of hot water and plenty of it. He agreed that non-interference was best in normal cases, but where there was local disease present it must receive local treatment.

Sarcoma of the Uterus.

Dr. J. A. MACPHAIL exhibited the specimen and spoke of the rarity of the disease.

Dr. LAPTHORN SMITH said that he had removed this sarcomatous uterus from a woman 40 years of age, the mother of twelve children at term and two miscarriages. The last child was one and a half years of age. She had been suffering from menorrhagia all last summer until she had consulted her family physician, who discovered a polypus projecting from the os uteri, and the speaker was sent for to remove it.

This was done and the uterus thoroughly curetted, after which the patient enjoyed good health for six months. At the end of this time menstruation again became profuse, abdomen rapidly increased in size, there was marked pelvic pain, and pain on urination and defecation, with a feeling of obstruction in the rectum. On examination the uterus was found to be the size of an adult head, the sound entering six inches. Immediate removal was advised, and after carefully rendering the cavity of the uterus aseptic by curetting and washing with bichloride, the patient was placed in Trendelenburg posture and the entire uterus removed. The patient was partially collapsed, but rallied quickly under copious enemata of hot salt solution. She was sitting up in two weeks, walking about in three weeks, and went home looking remarkably well in four weeks. This was the third case of sarcoma of the uterus that he had had under his care, one of them being a girl of 14 years, which he had reported to the Society about fourteen years ago.

Syphilis of the Liver.

Dr. W. F. Hamilton reported the case. (See page 763.)

Dr. C. F. Martin described the pathological condition. (See page 763.)

THE

Montreal Medical Journal.

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CONVOCATION OF McGILL FACULTY OF MEDICINE.

The sixty-third session of the Medical Faculty of McGill University was brought to a close on March 31st of this year, and was remarkable especially for the number of graduates. The degree of M.D., C.M., was conferred on no less than ninety students, who had satisfied the examiners that they were qualified to practise. Convocation Hall was, it possible, more crowded than ever with the relatives and friends of the graduates. Mr. J. H. R. Molson, the senior Governor, occupied the chair, in the absence of Sir Donald Smith, the Chancellor. The dais was crowded with professors and lecturers belonging to the various faculties. After the pass lists had been read by the Dean and the prizes presented, the students' valedictory was delivered by Dr. G. R. Deacon, who was also the medallist for the year. Prof. Armstrong followed with the customary valedictory address on behalf of the Faculty.

Prof. Craik, Dean of the Faculty, then gave his customary annual report of the more important features and incidents of the session. He explained that while the list of graduates seemed large, yet in proportion to the number of students it is not larger than it has been in former years. The percentage this year is 21·6; six years ago it was 21·4, and eight years ago it was 22·5. Thus it can be seen that the number is not proportionately large, proving that the stringency of the examinations has not in any way been relaxed, as might have been imagined. That the school has far outgrown its original provincial character and has become perhaps more thoroughly cosmopolitan than any other medical school on the continent is shown by the fact that of the 414 students who have been in attendance during the session, including of course the 90 graduates, 164, or a little under 40 per cent., are residents of the Province of Quebec; 121, or a little

under 30 per cent., are from Ontario; 85, or rather more than 20 per cent., come from the Maritime Provinces, including Newfoundland; 27 or 6½ per cent., from the United States; 13, or rather more than 3 per cent., from the Northwest Provinces and Territories, and 4, or nearly 1 per cent., from the West Indies and South America.

Feeling reference was made to the death during the year of Dr. E. P. Williams, Demonstrator of Pathology and Assistant Curator to the Museum.

The crowded condition of the hall proved more conclusively than ever before the great necessity for additional accommodation for functions of this kind. The janitors were busy turning people from the door long before the time appointed for the opening of the convocation, and among them many of the relatives of the graduates, who in consequence naturally felt great disappointment.

The following gentlemen, 90 in number, have fulfilled all the requirements to entitle them to the degree of M.D., C.M., from the University :

Archibald, E. W., B.A.....Montreal, Que.
Argue, J. F.....Carp, Ont.
Ault, C. R.....Montreal, Que.
Bonnell, S.....Halifax N.S.
Brathwaite, J. M.....Barbadoes, W.I.
Brunelle, P.....Lowell, Mass.
Carron, F. B.....Brockville, Ont.
Church, C. H.....Montreal, Que.
Church, H. M.....Montreal, Que.
Churchill. J. L., B.A.....Lockport, N.S.
Colquhoun, P., B.A.....Montreal, Que.
Corbett, F. A. F., B.A.....Parrsboro', N.S.
Craig, R. H.....Montreal, Que.
Crocket, A. P.....Fredericton, N.B.
Deacon, G. R.....Stratford, Ont.
Dewar, J. E.....Glen Sandfield, Ont.
Donahoe, M.....Cardigan Bridge, P.E.I.
Drum, L., B.A.....Quebec, Que.
Duckett, F. J.....Montreal, Que.
Elliott, F. B.....Mayfair, Ont.
Ellis, G. H.....Dundela, Ont.
Ewan, R. B.....Montreal, Que.
Ferguson, J. A.....Smith's Falls, Ont.
Findlay, C.....Hamilton, Ont.
Fish, E. C.....Newcastle, N.B.
Fisk, W. M.....Abbotsford, Que.
Fraser, A. D.....Breadalbane, Ont.
Fraser. H. B., B.A.....Westmeath, Ont.
Foss, A. F.....Sherbrooke, Que.
Goltman, A.....Montreal, Que.
Grant, A. J.....Pembroke, Ont.
Grant, D.....Pictou, N.S.
Hartin, G.....Bell's Corners, Ont.

Healy, D. J ..... Toronto, Ont.
Hogan, E. V., B. A ..... Weymouth, N.S.
Howell, W. B ..... Montreal, Que.
Hughson, E. R ..... Blenheim, Ont.
Irvine, A. D ..... Westmount, Que.
Johnston, F. E. L ..... Delaware, Ont.
Keith, H. W ..... Havelock, N.B.
Kelly, J. K ..... Almonte, Ont.
Kemp, H. G ..... Brighton, Ont.
Kendrick, W. N ..... Austin, Minn., U.S.A.
Lambly, W. D ..... Inverness, Que.
Lauder, S. E ..... Durham, Ont.
Lee, F. J ..... Port Hope, Ont.
Leslie, P. C ..... Montreal, Que.
Lynch, D. P ..... Chapleau, Que.
Martin, R. H ..... Chatham, Ont.
Mason, R ..... Dalesville, Que.
Mitchell, R. W., B.A ..... Montreal, Que.
Moffatt, W. A ..... Ormstown, Que.
Moles, E. B ..... Arnprior, Ont.
Morse, L. R., B.A ..... Lawrencetown, N.S.
Mowatt, W. B.A ..... Montreal, Que.
Macartney, F. W ..... Montreal, Que.
Macaulay, J. J. F ..... River Dennis, N.S.
Macpherson, D ..... Montreal, Que.
MacTaggart, D.D., B.A ..... Montreal, Que.
McArthur, A. W ..... Williamstown, Ont.
McDonald, H. K ..... Pictou, N.S.
McEwen, D ..... St. Elmo, Ont.
McGannon, A. V ..... Brockville, Ont.
Patrick, D ..... Montreal, Que.
Prescott, A. H ..... Queensbury, N.B.
Robertson, W. A. T ..... Howick, Que.
Robins, G. D., B.A ..... Montreal, Que.
Ross, R. O., B.A ..... Rossville, N. S.
Ryan, J. P ..... Portage La Prairie, Man.
Ryan, E. J ..... St. Kitts, W.I.
Secord, J. H ..... Summerside, P.E.I.
Smellie, W ..... Huntingdon, Que.
Shaw, R. B ..... Cove Head, P.E.I
Slack, T. J ..... Waterloo, Que.
Smith, S. R. B ..... Brighton, Ont.
Smith, R. E. G., B.A ..... Woodstock, N.B.
Smyth, W. H., B.A ..... Montreal, Que.
Spearman, F. S ..... Hemmingford, Que.
Stackhouse, O. C. S ..... Lachute, Que.
Staples, C. A., B.A ..... Stillwater, Minn.
Steeves, C. P., B.A ..... Lower Coverdale, N.B.
Sutherland, J. A ..... River John, N.S.
Tees, J., B.A ..... Montreal, Que.
Tetreau, T ..... Lawrence, Mass.
Thompson, F. L ..... Perth, Ont.
Tupper, T. S ..... Fredericton, N.B.
Warren, J. F ..... Harper, Ont.
Wheeler, F. H ..... Florenceville, N.B.
White, R ..... Pembroke, Ont.
Wood, W. S ..... Faribault, Minn., U.S.A.

MEDALS AND PRIZES.

THE HOLMES MEDAL is awarded to GEORGE DOUGALL ROBINS, B.A. of Montreal, Que.

THE FINAL PRIZE is awarded to GEORGE REGINALD DEACON, of Stratford, Ont.

THE CLEMESHA PRIZE is awarded to ROBERT OSWALD ROSS, B.A., of Rossville, N.S.

THE CLINICAL CHEMISTRY PRIZE is awarded to FREDERICK BURKE CARRON, of Brockville, Ont.

THE SENIOR ANATOMY PRIZE is awarded to WILLIAM OLIVER ROSE, of Lakeville, P.E.I.

HONORS IN THE FINAL BRANCHES.

1. Robins, G. D., B.A.
2. Deacon, G. R.
3. Kendrick, W. N.
4. Archibald, E. W., B.A.
5. Secord, J. H.
6. Carron, F. B.
7. Moffatt, W. A.
8. Argue, J. F.
9. Corbett, F. A. F., B.A.
10. Fisk, W. M.
11. McDonald, H. K.
12. Mitchell, R. W., B.A.
13. Smith, R. E. G., B.A.
14. Slack, T. J.
15. Lynch, D. P.
16. Ross, R. O., B.A.
17. Shaw, R. B.

HONORS IN MEDICINE AND CLINICAL MEDICINE.

1. G. D. Robins, B.A.
2. J. F. Argue.
3. E. W. Archibald, B.A.
W. A. Moffatt.
5. W. N. Kendrick.
G. H. Ellis.
7. G. R. Deacon.
8. R. O. Ross, B.A.
R. B. Shaw, B.A.
10. R. W. Mitchell.
11. F. B. Carron.
12. J. K. Kelly.

HONORS IN SURGERY AND CLINICAL SURGERY.

1. W. N. Kendrick.
2. G. D. Robins, B.A.
3. G. R. Deacon.
4. J. H. Secord.
5. E. W. Archibald, B.A.
6. W. A. Moffatt.
7. F. B. Carron.
P. C. Leslie.
R. O. Ross, B.A.
10. H. K. McDonald.
C. P. Steeves, B.A.
12. E. V. Hogan, B.A.
13. T. J. Slack.
14. W. A. T. Robertson.
15. F. A. F. Corbett, B.A.
16. W. M. Fisk.
17. J. F. Argue.
18. E. J. Ryan.
19. R. W. Mitchell.
D. Patrick.

HONORS IN OBSTETRICS AND CLINICAL OBSTETRICS.

1. R. E. G. Smith, B.A.
2. G. D. Robins, B.A.
3. E. W. Archibald, B. A.
4. W. N. Kendrick.
5. J. K. Kelly.
6. G. R. Deacon.
E. J. Ryan.
8. W. A. Moffatt.
9. J. F. Argue.
F. B. Carron.
11. E. V. Hogan, B. A.
J. H. Secord.
13. F. A. F. Corbett, B.A.
14. L. Drum, B.A.
15. H. K. McDonald.
16. D. P. Lynch.
W. Mowatt, B.A.
18. W. M. Fisk.
T. Tetreau.
20. H. M. Church.
R. W. Mitchell, B.A.
R. O. Ross, B.A.
23. C. A. Staples, B.A.

HONORS IN PRACTICAL PATHOLOGY.

1. G. D. Robins, B.A.
2. E. W. Archibald, B.A.
3. W. N. Kendrick. / W. A. Moffatt.
5. G. R. Deacon.
6. R. O. Ross, B.A.
7. F. B. Carron.
8. C. P. Steeves, B.A.

HONORS IN OPHTHALMOLOGY.

1. J. H. Secord.
2. R. W. Mitchell, B.A.
3. W. M. Fisk.
4. E. C. Fish.

HONORS IN GYNÆCOLOGY AND CLINICAL GYNÆCOLOGY.

1. E. W. Archibald, B.A.
2. G. H. Ellis,
3. R. B. Shaw.
4. W. N. Kendrick.
5. F. J. Duckett.
6. J. H. Secord.
7. G. R. Deacon.
8. D. P. Lynch.
9. F. A. F. Corbett, B.A. / R. W. Mitchell, B.A.
11. S. Bonnell. / H. W. Keith.
13. F. B. Caron. / L. Drum, B.A. / G. D. Robins, B.A. / R. O. Ross, B.A.
17. W. M. Fisk.
18. J. K. Kelly. / T. J. Slack.
20. J. L. Churchill, B.A.
21. P. C. Leslie.
22. E. V. Hogan, B.A. / W. A. T. Robertson.
24. F. H. Wheeler.
25. W. A. Moffatt.
26. J. M. Brathwaite. / A. D. Fraser.

HONORS IN HYGIENE.

1. G. R. Deacon.
2. W. N. Kendrick.
3. R. O. Ross, B.A..
4. L. R. Morse.
5. R. E. G. Smith, B.A.
6. G. D. Robins, B.A.
7. F. A. F. Corbett, B.A.
8. A. J. Grant.
9. R. B. Shaw.
10. W. A. Moffatt.
11. C. P. Steeves.
12. J. K. Kelly.
13. E. C. Fish.
14. J. H. Secord.
15. G. H. Ellis.
16. W. H. Fisk.
17. C. A. Staples.
18. D. McEwen.
19. D. P. Lynch.
20. J. E. Dewar.
21. F. W. Macartney.
22. F. L. Thompson. / H. K. McDonald.
24. Drum, L.
25. J. F. Argue. / J. L. Churchill. / D. Grant.
28. F. J. Lee.
29. P. C. Leslie. / R. W. Mitchell. / W. A. T. Robertson. / W. Smellie.

The next annual meeting of the Canadian Medical Association will be held in the city of Montreal on the 26th, 27th and 28th of August of this year. At a recent meeting held here the following members of the profession were appointed a committee of arrangements, namely : Sir William Hingston, Drs. Roddick, Buller, Marsolais, Blackader, Brunelle, Demartigny, Armstrong, Perrigo, Desjardins and Birkett.

The local secretary for the Province of Quebec is Dr. J. G. McCarthy, 61 Drummond street, Montreal. The general secretary is

Dr. F. N. G. Starr, 471 College street, Toronto, to whom all communications of a general character, having reference to the meeting, should be addressed.

Dr. John Herald has been appointed to the chair of clinical medicine in Queen's University, made vacant by the death of Dr. Herbert Saunders.

The *Australian Medical Journal* and the *Intercolonial Journal of Medicine and Surgery* have amalgamated under the title of the *Intercolonial Medical Journal of Australasia.*

In consequence of the death of the editor of *The Annals of Ophthalmology and Otology* the conduct of that quarterly periodical has passed into the hands of Dr. Casey Wood, of Chicago, who will have charge of the ophthalmological department, and Dr. T. Melville Hardie, who will act as editor of the department of otology and laryngology.

Obituary.

DR. HERBERT SAUNDERS.

The death of Dr. Herbert Saunders, coming so soon after that of the late Dr. K. N. Fenwick, removes from Kingston one of its most prominent and efficient physicians and from Queen's University the Professor of Clinical Medicine. Dr. Saunders occupied as prominent a position in medicine in Kingston as did the late Dr. Fenwick in Surgery. He is said to have been generous to a fault and kind to the poor. What greater tribute can be paid to any man ?

Dr. Saunders was well known in Toronto and in Montreal, and was esteemed and respected for his high attainments as a physician and for his kindly and generous character as a gentleman.

Dr. Saunders was born in London, England, in 1847. He was the son of a Church of England minister. His early education he received at home. At the age of 17 he entered Queen's College, Kingston. His professional course was taken at the Royal Medical College, where he graduated M.D. in 1869. He then returned to England and passed his examination in the Royal College of Surgeons.

Dr. Saunders leaves a wife and eight children to mourn his loss. During the past twenty-three years he has acted as surgeon of the Kingston Field Battery, and at his death he held the rank of surgeon-major.

Some weeks ago Dr. Saunders was overseeing some work on a drain which entered his house, when he inhaled sewer gas which escaped from the opening. He contracted œdema of the larynx in such an aggravated form that he could not swallow a mouthful of food for five days. After a week's illness there was a marked sign of improvement. His throat became much better and it was thought that he had a chance of recovery. But his lungs became involved, and finally he died of exhaustion and heart failure.

NEW BOOKS, ETC., RECEIVED AND NOTED.

Subphrenic Abscesses. By Carl Beck. Reprint from the Medical Record, February 15, 1896.

Inversion of the Vermiform Appendix—Diagnostic Palpation of the Female Pelvic Organs. By Geo. M. Edebohls, A.M., M.D. Reprint from the American Journal of Medical Sciences, June, 1895.

The Technique of Urethral and Intravesical Irrigations for the abortion of Gonorrhœa and Treatment of other Genito-Urinary Diseases. By Fred C. Valentine, M.D.

Report of a case in which Laparotomy was performed for Intestinal Perforation occurring in the course of Typhoid Fever. By L. W. Hotchkins, M.D. Reprint from the New York Medical Journal, January 11, 1896.

The Sensory Nervous System in Diagnosis—The Reflexes. By Chas. H. Hughes, M.D. Reprint from The Alienist and Neurologist, January, 1896.

Chronic Perivesical Inflammation. By L. W. Hotchkins, M.D. Reprint from the Annals of Surgery.

Researches into the Anatomy and Pathology of the Eye. By Treacher Collins, F.R.C.S. London : H. K. Lewis.

Voice Building and Tone Placing. By H. Holbrook Curtis, Ph.B., M.D. New York : D. Appleton & Co.

Brain Surgery for Epilepsy ; Neuralgia of the Fifth Nerve ; Modern Surgery of Serous Cavities ; Rupture of Left Lateral Ventricle, By B. Merrill Ricketts, Ph.B., M.D,

Toxic Amplyopias. By G. E. de Schweinitz, M.D. Philadelphia : Lea Bros. & Co.

A Text-Book upon the Pathogenic Bacteria. By Joseph McFarland, M.D. Philadelphia : W. B. Saunders.

Transactions of the American Ophthalmological Society, Thirty-first Annual Meeting. Hartford : Published by the Society.

Transactions of the American Climatological Society, Vol. XI., 1895. Philadelphia Printed for the Association.

NEEDLE IN THE HAND—(See page 926.)

THE

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Original Address.

VALEDICTORY ADDRESS

DELIVERED TO THE GRADUATES IN MEDICINE AT THE ANNUAL CONVOCATION OF THE MEDICAL FACULTY OF McGILL UNIVERSITY, MARCH 31ST, 1896.

BY

GEO. E. ARMSTRONG, M.D.

Assistant Professor of Clinical Surgery in McGill University; Surgeon to the Montreal General Hospital: Attending Surgeon to the Western Hospital.

GENTLEMEN OF THE GRADUATING CLASS,

The four years' course which seemed to you so long at the commencement of your college career has come and gone; you have laboured diligently: you have given evidence of your attainments by having passed successfully a severe and trying examination, and you are rewarded to-day by being presented with your degree of Doctor in Medicine and Master of Surgery from McGill University.

I have much pleasure in welcoming you into the ranks of an old and honourable profession and of greeting you as *confrères*.

Hitherto you have carried on your studies under the guidance of trained teachers; you now have the inestimable privilege of all free-born men, of shaping your own course, and, from this on, it will devolve upon yourselves more than upon anyone else so to conduct yourselves that you may, as the years roll by, develop into the fullest and highest possible manhood. Parents and teachers have done their part well; see to it that you do your part still better. The pupil must excel his master, else no progress. Kind friends rejoice with you to-day, and your Alma Mater joins with them in wishing you God-speed. The Faculty of Medicine will watch your career with solicitude, and will ever be pleased to hear of your successes and triumphs

over the great enemy of mankind which it is our especial duty to oppose.

It has been said that every man is the architect of his own fortune, and as an architect before building a house prepares a plan, so would I advise each one of you to lay out a working plan for your future guidance, a plan that will embody your highest ideals and aims and ambitions in life, and when you are sure that you are right, stick to it until, with a more mature experience, you become certain that you have discovered a better one.

We believe, judging from your close application during your undergraduate course, that each and every one of you is resolved to train yourself according to advanced scientific methods into a strong and able man, a power for good in the community in which you live and are known, a pride to the University which to-day has conferred its degree upon you, and an honour to the profession of which to-day you become a member.

It has been the aim of the McGill Medical Faculty to aid you in laying a broad and solid foundation. During the short period of four years scarcely more than this can be accomplished, but we have tried and we hope that we have succeeded in giving you such a training in the principles of scientific medicine and surgery that you can go on and build as solid and as heavy and as ornate a superstructure as your opportunities and talents may permit.

The first duty of a physician is to his patient. This duty should be the mainspring and inspiration of his life. And what nobler work can a man perform than to relieve pain and save life? What more enchanting occupation than dealing with those "crowded mysteries which lie between the first short gasp and the last and long-drawn sigh"? The opportunities for doing good possessed by the devoted family doctor are indeed enviable. Wealth, it is true, he seldom obtains, but other rewards more desirable even than wealth are often bestowed upon him in full measure. So order your daily life that you may be at all times worthy of the confidence which will be reposed in you. In no calling in life is there greater opportunity for the exercise—not the display—but for the exercise of the highest and keenest qualities of intellect, of self-reliance, and of endurance. You will be called upon to assume tremendous responsibilities; you will be placed amid surroundings that will test your fibre to the utmost. It will be no time to complete your education when standing at the bedside of a father or a mother or a loved one, fighting hard with the angel of death. You will do well, therefore, to spend your leisure time in further fitting yourselves for your life's work. Avoid excesses.

Do nothing that will unfit you for acting with sound judgment. Perhaps during the last few months you have felt the power of habit for good or for evil. Possibly some of you have had reason to regret that during your second and third years you did not make better use of your time and of your opportunities. If so, profit by your mistake and let every spare moment in the future be spent in fitting yourselves for emergencies and for acting promptly and efficiently. Your tests in the future will not be before examiners disposed to be lenient, but before the inexorable laws of life and death, where no favours are shown, and you will be rated by a critical public and by your own conscience.

In your early years in practice, before an indifferent public have learned how wonderfully clever you are, you will have time to study and to cultivate habits of thought and industry. Time spent at city clubs and village hotels will bring you small returns. Far better take up some special work or the acquirement of a foreign language. The greater your habits of industry the greater will be your pleasure and satisfaction in life and the better fitted will you become to aid those suffering in mind or body. You enter the medical profession at a time of great activity. Original research is being carried on on both continents with a zeal and an enthusiasm that knows not failure. The cause and nature of disease are understood and appreciated as they never were before. If you rest on your oars even for the short space of one year you may suddenly find that you are out of the race and that many of your methods are already obsolete. Constant labour is the price that must be paid for success in the practice of medicine. Do not think that you can do no original work unless you happen to reside in a city or are connected with a large hospital. Some of the most important discoveries have been made by general practitioners in the discharge of their ordinary duties. Cultivate a habit of close and critical observation. Let no detail be too small or insignificant to be noted. I would especially urge you to thoroughly master every case that comes before you. You must have often noticed in going through a large hospital ward how much more your teacher found of interest than you yourselves had observed. Probably nothing will aid you more in acquiring precision and definite knowledge than the writing of a short report of each case. The mere act of writing on paper what you see quickens and sharpens and renders more exact your powers of observation ; and besides that, by so doing, in a few years you accumulate a mass of facts that will enable you to draw useful conclusions, and which will often prevent you from being misled by those who form opinions on single or unusual experiences.

Great is the advantage possessed by those who can read, in the original, articles published by the Germans, the French and the Italians. Important and original work is being done in these countries, and you can find rest and pleasure in reading of the results and advances made. Great is the competition for practice among physicians, and the man who can read English only is sure to be behind in many respects. Take a pride in your library. It is a very poor book indeed that is not worth its price. Strive to accumulate on your shelves, as companions and guides, the works of the men who are a light to our profession. Your daily travels will give you plenty of fresh air and out-of-door exercise and fit you for the congenial atmosphere of a well-stocked library. But don't confine yourselves altogether to technical reading; cultivate also a taste for elevating and refining literature and art. By so doing you broaden your interests and sympathies, you place yourselves in touch with a larger circle of people and thus increase your usefulness.

"The living body is a mechanism, the proper working of which we term health; its disturbance, disease; its stoppage, death." And every year, with the increasing pressure of commercial, political, professional and social duties, there is an increasing necessity for the perfect working of this mechanism, and a corresponding demand for abler physicians with finer and more exact methods to keep this mechanism up to its highest standard.

As physicians, as members of health boards, as educated citizens, do your utmost for the common weal. Instruct and advise in the household routine, in the feeding and education of children, and above all remember the old maxim that "Example is better than precept."

Avoid that hydra, charlatanism. Give your best aid to this Faculty of Medicine in endeavouring to bring the "reign of imposture" to a close. Scientific medicine has always had a hard road to travel, but to it you owe your present position and to it you must look for further knowledge. Do not join that group who live only to make money and who seem to exhale an air heavy with deception.

Gain a wide knowledge of history, science and philosophy, if you can, but be true, be honest, be brave. Two companions you can never shake off—your record and your conscience. They are always with you, and it rests with you to make them a comfort or ever-present tormentors. A good conscience and a good record are not the prerogatives of rank or intellect. Yet I may say that with doctors as with

others all work and no play is not compatible with the best work. In the words of Holmes—

> " Run if you like, but try to keep your breath ;
> Work like a man, but don't be worked to death;
> And with new notions—let me change the rule—
> Don't strike the iron till it's slightly cool.
>
> " If the wild filly 'Progress' thou wouldst ride,
> Have young companions ever at thy side ;
> But wouldst thou stride the staunch old mare 'Success,'
> Go with thine elders, though they please thee less."

Begin early in your career to take an annual holiday. It will be better for you in the long run, even if you do lose a few dollars, or even one or two of your best families. The renewed energies and inspirations thereby obtained will be appreciated and will bring you more than you may have lost. Attend meetings of medical men, and at those associations have your say, even if you do by so doing gain the reputation of being a little fresh. It will wake you up, and then try to do better the next time. Lay your plans to go abroad. Visit Great Britain and the Continent, for even a graduate of old McGill is sometimes surprised to find that they know a thing or two over there that he had never heard of.

And now, gentlemen of the graduating class, " to the life-long study of this science, which looks out upon so many pathways toward the light, and to the practice of our art, whose aims are ever linked to the high realities of life," it is now my privilege, in the name of the Faculty of this old and honoured University, to bid you a cordial —" Welcome !"

Original Communications.

THYROID FEEDING

AND ITS

APPLICATION TO THE TREATMENT OF INSANITY.[1]

BY

T. J. W. Burgess, M.D.

Medical Superintendent of the Protestant Hospital for the Insane, Verdun, Que.

The paper which I have prepared for your consideration is based upon a series of experiments made at Verdun, in the carrying out of which, as well as for the clinical records, I am greatly indebted to my assistant, Dr. G. H. Manchester.

Thyroid feeding, as now practised, has been the gradual outgrowth of a suggestion made by Prof. Victor Horsley in February, 1890. Reasoning from the experiments of Schiff, Eiselsberg, and himself, he advised the transplantation of the thyroid of a healthy sheep into persons affected with myxœdema, with a view to arresting the progress of a disease supposed to be due to the absence or incapacity of the normal thyroid gland.

M. Lannelongue, of Paris, during the following month, first put the suggestion into practice, and the operation was soon repeated in other places. Varying results followed the several cases, but benefit enough ensued to show that there was something in Prof. Horsley's suggestion.

In some of the cases operated upon changes were recorded as occurring within a few hours after the transplantation, and this fact led Dr. George Murray to the conclusion that they must be due to absorption of the thyroid juice already present in the piece of tissue implanted, because the interval was too short to have allowed the formation of either fresh secretion or new thyroid tissue. Acting upon this supposition he made an extract of fresh thyroid and injected it subcutaneously into a myxœdematous patient. The astonishing results obtained were communicated to the medical world at the meeting of the British Medical Association held at Bournemouth in 1891.

The risks of a large operation being done away with by Murray's method, while at the same time the immediate results were even more

[1] Read before the Montreal Medico-Chirurgical Society, March 20th, 1896.

satisfactory, at once led to a number of trials of it, both in asylum and private practice. The same marvellous benefits as those recorded by Dr. Murray almost invariably followed.

The next advance was made by Dr. Hector Mackenzie, who, in 1892, substituted feeding on fresh thyroid glands for the subcutaneous injection of the extract prepared therefrom. The beneficial results were no less marked. In 1893 Dr. Arthur Davies substituted for feeding on the raw or slightly cooked glands, the method now most in vogue, namely, the administration by the mouth of a powdered extract of them. Since then many preparations have been put upon the market in the shape of tabloids and pills of both thyroid and thyroidin, but none, to my mind, are as reliable as the desiccated thyroids prepared by Parke, Davis & Co. In this preparation ten grains of the powder represents one sheep's thyroid of average size.

The fact that in all myxœdematous patients there is either actual insanity or an affection of the intellectual faculties bordering thereon, naturally called the attention of asylum physicians to the new treatment for a disease of which most of the examples are found in their care.

Their attention so attracted, it occurred to Drs. Macphail and Bruce, of the Derby Borough Asylum, that if they could at will increase the pulse and temperature, so often found lowered among the insane, they might get a corresponding mental improvement similar to that seen in myxœdematous patients after thyroid treatment, and such as has long been known to occasionally occur in old cases of insanity after erysipelas and the exanthemata. They at once instituted a series of experiments, the details of which were recorded in a conjoint article published in the *Lancet* of October 13, 1894. A second article on the same subject was published by Dr. Bruce in the *Journal of Mental Science* for January, 1895.

About the same time, but quite independently, Dr. Clarke, of Rockwood Hospital, Kingston, Ontario, reasoning from similar data, had set on foot a like series of investigations, an account of which appeared in the *American Journal of Insanity* for October, 1895. It was in the interval between the appearance of Dr. Bruce and Dr. Clarke's articles that we entered upon the experiments, some details of which I now propose to lay before you.

Four patients were selected for experiment, two of them being cases of melancholia with stupor, one a case of dementia following melancholia with stupor, and one a case of chronic mania. The melancholic cases were comparatively recent, six and ten months respectively, but were making no progress toward recovery under

ordinary moral and medical treatment. The dement was of nearly two years standing and one our dullest patients. In the case of chronic mania, which was of over four years standing, the treatment was continued only a few days, as it was found impossible to keep the patient in bed without resorting to restraint.

Preparatory to commencing the treatment the patients were weighed, then put to bed, and the pulse and temperature taken morning and evening for several days. A quantitative and qualitative examination was also made of the urine. Regular full diet, the same as that given the other patients, was allowed, and the nurse was instructed to keep the bowels open, giving cascara sagrada if found necessary. Desiccated thyroid was given three times daily in doses varying from five to ten grains, with the ordinary meals. Mental and physical changes were noted from day to day, and the pulse, respiration and temperature were taken morning and evening throughout the whole period of treatment, as well as for some days after the stoppage of the thyroid. After-treatment consisted in the administration of tonics.

Case I.—M. A. G., female, aged 19, farmer's daughter, fair education. This, her first attack, began seven weeks prior to her admission to the hospital. The disease was strongly hereditary, and she had marked suicidal tendencies, with hallucinations of sight. Exciting cause unknown.

Admitted June 11, 1895. A rather intelligent looking girl, but dull and somewhat anæmic. Sat with head hung down and could hardly be got to speak or to look one in the face. Examination revealed no physical disease anywhere. Diagnosis of mental disorder, melancholia with stupor.

October 5th.—Has varied at times since admission, but on the whole keeps getting steadily duller and more despondent. Has made several attempts to strangle herself. Is now very resistive and can hardly be got to speak. Refuses food and has to be fed, sometimes with a spoon, sometimes with the stomach tube. To-day was put to bed preparatory to commencing thyroid treatment. Weight 94 pounds, pulse 64, temperature 98°, respirations 24, urine normal.

October 7th.—Stopping in bed seems to be quite to her taste. Some vague suicidal wishes expressed.

October 8th.—Refused to eat; drinks almost nothing, and urine is in consequence much diminished in quantity. In the morning pulse 60, temperature 98°, respirations 21. Began administration of thyroid in five grain doses three times daily.

October 11th.—Takes kindly to the thyroid, which she says she likes,

but as yet temperature has not been affected, though pulse rate shows a decided increase.

October 14th.—Bowels very loose, but she has been taking small doses of cascara to relieve costiveness. It was ordered to be discontinued.

October 15th.—Pulse this morning is up to 102, temperature 98·6°.

October 18th.—Pulse increased to 110 with diminished tension; temperature 98·4°; is getting thinner.

October 21st.—Pulse still elevated (109); temperature 99·6°. Sleeps well and eats freely of her own accord. Is brighter mentally.

October 25th.—Has grown gradually brighter during the past four days. Now answers questions readily and is very good natured. Pulse to-day ranges from 110 to 115. The thyroid was reduced to one five grain dose daily.

October 27th.—Was allowed to sit up for a short time.

October 29th.—Up during the day, but complained of dizziness and said she felt stupid. Thyroid discontinued.

November 1st.—Pulse fallen to normal, temperature 98°. Is doing a little work in the ward. Weight 90 pounds.

November 6th.—Very bright mentally, lively in actions, and working steadily at sewing, etc.

November 21st.—Bright, industrious, and converses freely. Weight has increased to 94 pounds, exactly the same as when the thyroid feeding was begun.

December 1st.—Is apparently quite well mentally and physically. Has got much stouter.

December 18th.—Sent home on trial. Weight 113 pounds.

December 30th.—Reported as keeping quite well. Has gained flesh and now weighs 120 pounds, that is 26 pounds more than when thyroid treatment was begun.

January 16th.—A letter from her father states that she is stouter than she has ever been in her life, that she eats and sleeps well, is bright and cheerful, in fact quite herself again. Was discharged recovered.

Case II.—C. H., aged 30, single, labourer's daughter, several previous attacks. First symptoms of present attack manifested themselves about five months before admission. Certificates stated that patient was melancholy, wanted to lie in bed all day, would not speak, and took no interest in anything or anyone. Ascribed exciting cause, la grippe.

Condition on admission, April 25th, 1895.—Much run down physically. Dull mentally, and dirty in habits. Persisted in lying

huddled up on a sofa or in a corner of the room. If efforts were made to rouse her, which it was difficult to do, she became very irritable and profane. Apart from her swearing could not be got to speak. At times tore her clothes and pulled out her hair. Diagnosis, melancholia with stupor.

Three months after entering the hospital she had a severe attack of diarrhœa, which lasted over a week, and during which she was much brighter mentally, speaking to the nurses and answering questions, though slowly and apparently with much effort. She soon relapsed into her old condition of stupor, refusing to speak and resistive to anything being done for her.

October 12th, 1895.—Put to bed preparatory to thyroid feeding. Weight 86 pounds, pulse 68, temperature 98°, respirations 21, urine normal.

October 16th.—Thyroid commenced in five grain doses three times daily,

October 18th.—Pulse increased, but no rise in temperature. Sleeps well, eats but poorly.

October 20th.—Pulse rate increased 20 to 30 beats; temperature still unaffected; is very irritable.

October 24th.—Brighter mentally and will now answer questions. Sleeps and eats well.

October 28th.—Pulse 106, temperature shows no rise.

November 3rd.—Is much emaciated; hair falling out so rapidly that her pillow is covered with it.

November 5th.—Dose of thyroid increased to ten grains three times daily.

November 9th.—Hair still falling out and she is now quite bald. Pulse much accelerated, but temperature still remains normal.

November 11th.—Though rather brighter there has been no marked mental change, and thyroid treatment was discontinued in the hope that the stage of reaction might initiate some more favourable result. She eats well, but is very thin; is cross, and when she answers a question does so very snappishly; covers up her head when anyone goes near her.

November 13th.—Got up for a short time and was found poring over a picture-book, seemingly much interested. Answered quietly and rationally when spoken to, with no trace of her old snappishness.

November 15th.—Up all day and darned some socks. Seems an entirely different girl. Is now bright and intelligent in expression, active in her movements, and talks freely and sensibly. Asked of her own accord when we thought she would be able to go home. Though very thin she is gaining physically.

November 21st.—Pulse, temperature and respirations normal. Gaining flesh rapidly and now weighs 100 pounds. Keeping well mentally.

December 21st.—Sent home on trial, seemingly quite well mentally and physically. Weight 110 pounds; a new crop of hair appearing.

January 22nd.—A report from her friends states that she is keeping well in every respect, and that her menses, which were suppressed all through her hospital residence, have returned. Her weight is now 114 pounds. Discharged recovered.

Case III.—F. P., aged 25, married, three children, lumberman's wife, first attack. Her mental trouble began about nine months before her admission, the ascribed cause being domestic infelicity. Her certificates described her as refusing to speak or assist herself in any way, although quite able to do so.

When admitted, August 20th, 1894, she was in a wretched condition both physically and mentally. Her appearance was suggestive of kidney affection. She was thin, anæmic and sallow. Mentally she was intensely dull and stupid. Could not be got to speak. Would sit all day long in one position, paying no attention to anything said to her and seemingly hearing nothing. She was passively but obstinately resistive to everything; to being put to bed or got up, to being bathed, taken to meals, etc. She ate and slept well, but was very dirty in her habits. Diagnosis, melancholia with stupor.

During the first month of her residence she was induced to do a little work, but soon relapsed and would do nothing, not even attend to the calls of nature.

On one occasion, about a year after admission, her feet became swollen and she showed signs of puffiness under the eyes, but examination of the urine discovered no casts or albumen, and the heart, though enlarged, betrayed no adventitious sounds. Put to bed for a few days, the swelling entirely disappeared and she was able to be up as usual.

Her condition remained unchanged up to the time she was put on thyroid, except that she had got stouter and that careful attention had somewhat lessened her filthiness of habits. She was a veritable vegetable, and her mental condition was now regarded as one of confirmed dementia.

October 5th, 1895, nearly two years after the advent of her mental disorder, and fourteen months after her admission to the hospital, she was put to bed preparatory to thyroid treatment. Weight 106 pounds, pulse 90, temperature 99, respirations 22. Urine was examined and found as follows:—dark amber, slightly acid, specific gravity 1028, clouded, no deposit, no albumen, no sugar.

October 8th.—Thyroid was commenced in five grain doses three times daily.

October 9th.—Pulse and temperature distinctly elevated in the evening, being 112 and 100·8° respectively.

October 11th.—Pulse 114, temperature 102°. Sleeps well.

October 13th.—Refused her food, has diarrhœa.

October 15th.—Pulse reached 130. Is getting much thinner. No sign of mental change.

October 17th.—Elevation of pulse and temperature continues. The patient so weak that it was deemed advisable to discontinue the thyroid.

October 19th.—Pulse and temperature still keep up in spite of the abandonment of the thyroid, and there is no mental change. Her present condition would lead one to suspect the existence of some underlying constitutional disease, probably phthisis, although examination of the chest did not reveal it, and she has had no cough at any time.

October 23rd.—Decidedly brighter mentally. Her countenance has more expression in it and she now replies to questions by nodding or shaking her head. For past two days has been suffering from a troublesome cough and is raising nummular sputa. Pulse to-day is 134, temperature 100·4°.

October 31st.—Physical condition continues much the same, and there is no doubt that tuberculous trouble underlies the present phenomena, although she respires so feebly (cannot be urged to do otherwise) that the stethoscope is completely handicapped. Mentally she is much brighter and to-day asked the nurse to make her some toast for breakfast. This is the first time she has spoken since admission.

November 5th.—Visited by her husband and aunt, to whom she talked quite pleasantly, much to their delight. Is now eating very well.

November 20th.—Is steadily failing physically and has gone back mentally. Her face has assumed its former expressionless character, and she has not spoken for the past ten days, although she occasionally shakes her head in reply to a question. Has developed the typical tuberculous hectic, flushed cheeks, morning remission of temperature, rapid thready pulse, etc.

February 20th, 1896.—Has regained her appetite and eats well, but has continued to fail physically and go backward mentally. Is now very low and very dull.

February 21st.—Died of phthisis, nineteen weeks and four days after commencement and eighteen weeks and two days after discontinuance of the thyroid.

The very favourable results arising from our first trials led to the immediate selection of a second series of cases, five in number, for experiment. One of these was a case of chronic melancholia of several years standing; two were cases of climacteric insanity of one and three years duration; and two were cases of melancholia with stupor, one of eight months duration, the other of nearly two years and fast drifting into dementia. In all these cases the physiological effects of the drug were marked, the result being improvement in the case approaching dementia, as also in the case of chronic melancholia and one of the cases of climacteric insanity; no improvement in the case of melancholia with stupor and the other case of climacteric insanity.

At the present time the treatment is being tested in four additional cases, viz., two of dementia, one of chronic melancholia, and one of melancholia with stupor.

The following is a brief *epitome* of the more important symptoms noted in the thirteen patients to whom the thyroid has been administered:

Circulation.—The changes noted in the pulse were increased rate with generally lessened tension. Increase in the rate was invariably present and was remarked almost immediately after beginning the treatment. In the majority of the cases the rate ranged from 110 to 120, in two cases reaching 140, and in one 150. In three of the patients irregularity of the pulse was noted, but no precordial oppression was complained of.

Temperature.—In one case only did the temperature fail to rise above normal. The elevation was usually from 1° to 2½°, the highest point reached being 102°. The increase seemed to continue until the system became accustomed to the dose which was being given, when there was a diminution, though not to the point at which it had stood when treatment was commenced. An increase of the dose caused it to rise again.

Respiration.—Increase in the respiratory rate was the rule, though never to any marked degree. In one case slight dyspnœa was complained of, but for a few hours only.

Skin.—A flushed, moist skin was generally present, and in two cases perspiration was profuse. One patient, about three weeks after commencing the treatment, presented a well-marked rash, very similar in appearance to roseola, in the neighbourhood of the knees and ankles. It was plainly apparent for three days, then gradually disappeared. Desquamation was observed in three cases only. It was slight in two instances, but extensive in the third. In one of our

patients the hair fell out in large masses, so that she was soon almost bald.

Alimentary Canal.—The tongue generally remained clean, but in a few cases became slightly furred. The tendency of the drug was to relax the bowels, and in two cases we had diarrhœa, which, however, was easily checked. There was on the whole a lessened desire for food, but in some cases the appetite remained unaffected. Thirst was marked in three cases, and in two instances there was some nausea and vomiting.

Urine.—Examination of the urine revealed nothing noteworthy either as regarded quantity or quality.

Menstruation.—Not affected.

Weight.—All our patients lost noticeably in weight during treatment, the loss in one case amounting to nearly thirty pounds. The gain following cessation of the drug was very rapid and like that so often seen after typhoid fever. One patient gained nineteen pounds in four weeks.

Muscular System.—More or less fibrillar muscular tremor, or even twitching, was nearly always present. Sometimes it was the tongue, sometimes the facial muscles and sometimes the extremities in which these symptoms were most marked. In one case the twitching extended over nearly the whole voluntary muscular system, and to such an extent that the patient could not sit or lie still. Nictitation is very marked in one of the cases now under treatment.

Mental Functions.—In all cases there was a decided mental change. The mind became more active, the countenance brighter, and the manner and actions more lively. Patients who had been silent and inattentive to their surroundings spoke and displayed a quite unaccustomed interest in passing events. Pressed still further with the drug there was a tendency to excitement and talkativeness, in some cases to resistiveness and irritability, and in one instance to destructiveness of clothing. The mental change was generally apparent while the treatment was being pursued, but in one case it did not appear until the stage of reaction was established. Sleep did not seem to be at all affected.

Results of Treatment.

Chronic Mania.—One case; treatment abandoned as patient would not stop in bed.

Chronic Melancholia.—Two cases; one improved, and one under treatment and improving.

Melancholia with Stupor.—Five cases; two recovered, one much

improved, one unimproved, and one under treatment. The mental change in the improved case was very remarkable. The patient, who had not spoken for a year, talked quite fluently and displayed a vivid recollection of all that had occurrred since her admission; said she always knew her mother when she came to see her and wanted to speak to her, but could not; was anxious to eat, but could not help resisting the administration of food, etc.

Climacteric Insanity,—Two cases; one improved, one unimproved. The latter case was taken home soon after the abandonment of the treatment and has since recovered. Whether the thyroid contributed to the recovery is a question, but I am inclined to think that it must have had some influence, as beforehand the case seemed utterly hopeless.

Dementia—Three cases; one temporarily improved under treatmeent, but relapsed as soon as it was discontinued, two under treatment and displaying the physiological effects of the drug in a marked degree.

Recapitulation.—Two cases recovered, four improved, three unimproved, four under treatment; total, thirteen.

Conclusions.

From our own cases and those published by Drs. Bruce and Clarke I feel convinced that thyroid feeding will be found of benefit in certain forms of insanity.

The cases to which its use seems best adapted are some of the various forms of melancholia, especially melancholia with stupor, puerperal and climacteric insanity, and incipient dementia.

It is especially likely to be beneficial in a class of cases often seen in asylums, where improvement has progressed to a certain stage then come to a stand still in spite of efforts to the contrary. In such cases, which are prone to drift soon into dementia, the fever induced by the thyroid seems to give a fresh impetus toward complete recovery.

Its use is contra-indicated in cases of acute mania and melancholia where the already existing excitement is rapidly reducing the weight.

In regard to its use where there is co-existent disease of the lungs, my experience, as recorded in Case III., is quite different from that of Dr. Bruce, who states that in five of his twenty-three cases where there were symptoms of phthisis, although the disease was not active, the immediate effect of the thyroid was to light up activity in the phthisical areas, but on discontinuing the drug the phthisical symptoms disappeared and the patients gained in weight. In this case,

while the thyroid showed a marked and favourable effect, though temporary, on the mental condition, it unfortunately fanned into active flame the latent phthisis slumbering in the system and probably shortened the patient's days. From my own experience, therefore, I would regard thyroid as contra-indicated where there exists any sign of organic disease of the great viscera.

Tolerance of the drug varies in different individuals, and as yet it is impossible to fix the dose which will produce the physiological effects without at the same time giving rise to toxic symptoms. Grains five three times daily was our initial dose in all cases, and in one instance only was it found necessary to increase this dose beyond ten grains to obtain the desired action.

DIAGNOSIS AND TREATMENT
OF
SEPTIC INFECTION IN PUERPERAL CASES.[1]

BY

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The mortality returns of most large cities, both in Europe and America, show a very considerable proportion of deaths due to septic infection of the puerperal woman.

It has been generally supposed that since the introduction of antiseptics the mortality of child-birth has been reduced. This is true as far as maternity hospitals are concerned, the world over, but, alas ! in private practice cases of septic fever during the puerperium are constantly met with.

It appears that in the forty-eight years previous to 1891, there has been no decline in the percentage of mortality due to septic fever in London, and that in the whole of England and Wales there has been an increase in the percentage.[2] In New York the mortality returns show a decrease in the death record of puerperal infection during the past ten years.[3] But here also the decrease is in great part due to the infrequency of death from this cause in the large Maternities.

Dr. Herman[4], of London, Eng., points out three great differences which exist regarding the prevention of septic infection, between hospital and private practice. In private practice there is less risk from omission of antiseptic precautions. In hospital practice the attendants are guided by strict rules. In private no matter how careful the physician may be, the nurse or attendant may carelessly overlook his orders, and infection of the patient result. In hospital we have perfect control of our patients, while in private our control is limited by the patient's will. " If the patient will not submit to the physician's orders, he must either alter his methods or retire from the case."

Hence any practitioner is liable to have an outbreak of septic fever occasionally in his obstetric practice.

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[1] Read before the Montreal Medico-Chirurgical Society, Feb. 21, 1896.

[2] Boxall, The mortality of child-birth, *Lancet*, July 1st, 1893.

[3] Bullard, Puerperal Infection in New York city, *New York Journal of Gynæcology and Obstetrics*, Vol. IV., page 399.

[4] Herman, The Prevention of Puerperal Fever in Private Practice, *British Medical Journal*, Vol. I., 1896, page 79.

In order to be effectual, energetic treatment in cases of acute puerperal septic infection must be promptly undertaken.

A thorough acquaintance with the nature, mode of onset, as well as with the course the infection is likely to run, is necessary.

Most of the cases diagnosed as "puerperal fever," (a term which should be relegated to the past along with "milk fever,") are really cases of septic intoxication or septicæmia. The general symptoms are caused, not by the presence of the micro-organisms in the blood, but by the absorption of the toxines produced by their action on the surface of the infected parts. Septicæmia is seen in its most typical form in puerperal cases, because the rich lymphatic supply of the uterus favours the absorption and dissemination of the toxines, while the decidual and placental debris favours the rapid development of the organisms.

Putrefactive organisms may be present in all forms of septic infection, but in septic endometritis they do not predominate, the active cause being the presence of the pyogenic cocci. Infection due to the presence of the streptococcus is generally the most severe. The septic process is at first a distinctly local one, confined to the endometrium, the clots at the placental site, or the surfaces of any lacerations in the genital tract which may have resulted from labour.

The fact must not be overlooked that an infective mastitis may result in a condition of sapræmia or even of septicæmia. It is the same process, but the infected site is more accessible, the absorption is less active.

Bumm[1] has made an exhaustive study of the pathology of several cases of septic endometritis, and according to his classification there exist two primary forms : the Putrid and the Septic.

The putrid form is the most distinctly localised. Microscopic sections of the endometrium in this form show the outer layer swarming with bacteria, while just internal to this, is a layer of abundant round-celled infiltration, a rampart, as it were, thrown out by nature to prevent further penetration of the invading micro-organisms.

In the septic form there is a general infection. The endometrium is disorganised and infiltrated with fibrinous exudate, presenting a diphtheritic appearance. In this form the layer of round-celled infiltration is said to be absent.

A consideration in detail of the various secondary forms of puerperal septic infection time will not permit, but I present in the following table a summary of the various forms from a clinical stand-point.

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[1] Bumm, *Archiv. f. Gynak.*, 1891, Bd. XL., Heft. 3.

In this classification I have omitted those rare cases,[1] in which there exist morbid conditions antedating labour, such as tumours, pus-tubes or other septic accumulations, the bruising or rupture of which, during labour, leads to peritonitis or septicæmia.

I have met with two cases of this type; in both the bruising of a large myoma at labour led to peritonitis, which terminated fatally in spite of immediate surgical assistance.

The infection may be :

(1.) LOCAL, leading to

(a) *Puerperal Ulcers.*.

Greyish pseudo-membranous patches found wherever the mucous membrane is torn. Lochia offensive. Smarting pain. Fever.

(b) *Endometritis*—Two forms.

I. Catarrhal.	*II. Pseudo-membranous.*
Vaginal m.m. red, swollen. Cervix œdematous. Os patulous. Fœtid, slimy, brownish lochia. Uterine m.m., covered with small cystic swellings. Uterus well contracted. No tenderness. Abdomen flaccid.	All vaginal and cervical lacerations covered with greyish membrane, extending to endometrium. Lochia may be normal or fœtid. Not much tenderness in uterus, which is enlarged. Chills and fever not marked.

(c) *Metritis.*

Extension by uterine lymphatics.

(d) *Peri- or Para-metritis, Cellulitis.*

Abscess formation.

(e) *Pyosalpinx.*

Extension from uterine mucosa.

(2.) GENERAL, resulting in

(a) *Peritonitis.*

Extension along pelvic lymphatics.

(b) *Pyæmia.*

Extension along blood vessels.

(c) *Septicæmia* (rare.)

No local signs, general infection by micro-organism. { Streptococcus. Bacillus coli comm. Other septic bacteria.

The forms of endometritis which are here designated catarrhal and pseudo-membranous correspond with the putrid and septic forms of Bumm's classification. In the catarrhal form the lochia are fœtid, mucoid and of a brownish colour ; while in the pseudo-membranous form the lochia are, as a rule, scant or absent, and there is but little odour. In severe forms it is generally conceded that there may be no offensive odour whatever about the discharges. Warren[2] expresses the opinion that the membranous condition in this form is due to the feeble peptonising influence of the streptococcus. Sapræmia may accompany the first form, though symptoms of absorption may be

[1] Noble, Puerperal Pelvic Cellulitis and Puerperal Peritonitis, *Am. Gyn. and Obstet. Journal*, Vol. VI., page 18.

[2] Warren, Surgical Pathology and Therapeutics, page 373.

absent and the odour of the discharges along with slow involution of the uterus be the only conditions noted. In mild cases of this form the symptoms may be overlooked at the time of onset, and the condition only revealed by the uterine discharge continuing for some time and retaining its sanguinolent character. These cases fall into the hands of the gynæcologist later, with symptoms of too frequent and excessive menstruation, and on examination reveal a condition of subinvolution with chronic endometritis.

Sapræmia, septicæmia or pyæmia may result from the pseudomembranous form.

The onset of infection is marked by the occurrence of slight chilliness, headache, nausea, frequently followed by vomiting and diarrhœa. The temperature rises rapidly, attaining to from 102° to 105° in a short time. One of the earliest symptoms is great rapidity of the pulse, quite out of proportion to the temperature curve.

Given a marked acceleration of pulse rate, associated with an ascending temperature, with some slight chilliness, be on the watch for septic infection and do not be content with prescribing a mild antipyretic powder.

Warren[1] draws attention to the blood changes which occur as the result of infection, stating that the change is in the number of the red blood corpuscles, and that this varies with the degree of infection.

In true primary septicæmia the onset is more gradual. There is more prostration. The entire lymphatic system is more or less affected, and the spleen may become hypertrophied, a symptom which should always be sought for, and is characteristic of septicæmia according to Warren.

Dr. Edward P. Davis[2] gives the differential diagnosis of sapræmia as follows. "In sapræmia the symptoms are those of the decided effect produced by the sudden absorption of a toxin; in septicæmia, the absorption is more gradual and is aggravated by the rapid development of the septic germs. The fever shows remissions and exacerbations. In pyæmia the symptoms of septicæmia are further increased by the signs and symptoms of abscess formation."

The practitioner in obstetrics should, if possible, spend an hour or two occasionally in the operating room of an abdominal surgeon. Many valuable lessons would there be learnt of patient attention to detail in rendering every thing and person brought in contact with the patient during the operation as aseptic as possible. Almost identical care and attention to detail is called for when the general practitioner, brought in contact, as he is, with all classes of cases, is

[1] Ibid, page 344.

[2] Davis, Puerperal Sapræmia, *Am. Gyn. and Obstet. Journal*, Vol. XI., page 15.

called upon to manage a difficult case of obstetrics. Every vaginal examination made in the course of labour increases the risks of the patient to septic infection. Abdominal palpation has, in modern midwifery, done away with the necessity of frequent vaginal examination. In many European clinics the latter is only resorted to in cases of dystocia.

Time does not permit me to go into detail as regards the aseptic management of a case of midwifery, but there are two points to which I would refer. The first is in regard to cleansing the hands. The usual method is to thoroughly scrub the hands with a nail brush, using plenty of soap and hot water. Then without rinsing, the hands are plunged into a more or less strong solution of bichloride of mercury. The examination is then made. The soap which remains on the hands after scrubbing should be washed off in clean, warm water and the hands then may be immersed in the bi-chloride solution, but it is better before doing so to dip them in alcohol; this removes all the soap and grease from the skin and permits a more thorough action of the bichloride.

Before making an examination, the vulva should in all cases be cleansed. In order that the examining finger be not brought in contact with the patient until it reaches the vaginal orifice, the labia had better be separated by the thumb and middle finger of the same hand, before the forefinger is extended and introduced.

The maintenance of good free drainage for the lochia, and of firm uterine contraction are important prophylactic measures.

The objects of treatment, when once septic infection has occurred, are to thoroughly cleanse and to keep clean the infected tissues, to provide free drainage and to support the vitality of the patient.

The uterine cavity is best cleansed by means of the blunt curette, followed by the brush to entangle and remove any shreds loosened by the curette, then a prolonged hot antiseptic douche, using a large quantity of solution. The antiseptic most frequently employed in this connection is bi-chloride of mercury. But it must be borne in mind that this salt, in neutral solutions, is precipitated as an albuminate when brought in contact with blood or other albuminous material To prevent impairment of strength by this contact, an acid must be added to the solution, in the proportion of five parts of the acid employed to one of the bi-chloride. The antiseptic douche when the bichloride is used must always be followed by plain hot water to prevent absorption of the salt. To prevent the further growth of germs as far as possible, this treatment should be followed by the introduction of a bougie containing a drachm of iodoform, and gentle packing

of the uterine cavity with aseptic gauze, to stimulate the uterus to contract and to provide drainage. This gauze must be carried right to the fundus, and if packed too tight will do more harm than good. This treatment, with the exception of curetting, may be repeated in from 24 to 48 hours, as the severity of the general symptoms may indicate. Lower range of pulse rate, drop in the temperature, return of the lochia, and evidence of uterine contraction and involution, are symptoms of a successful result of such treatment.

This treatment must be persisted in until the temperature and pulse reach normal. I have seen several successful results where, for 48 hours, the symptoms of improvement were so slight as to make one despair of the result desired.

The administration of saline purgatives favours free drainage of the lymphatics of the peritoneum. Dr. Davis recommends that a copious amount of normal saline solution be given to the patient, either by transfusion, by the mouth, or by copious rectal injections. Strychnia and quinine should be administered in full doses at regular intervals.

The stomach should not be overloaded, but the most nourishing diet possible is indicated. The employment of predigested nutrient enemata supplements the treatment in serious cases. Alcoholic stimulants are valuable in this as in all other septic conditions, though many do not advise their use at the same time as strychnia.

The surgical treatment of puerperal septicæmia and peritonitis has made many advances during the past few years.

A *resumé* of a few typical cases for surgical treatment may serve to open this branch of my subject for discussion.

There is a class of cases in which the septic condition of the endometrium extends by direct continuity of the mucous membrane to the Fallopian tubes, and here being beyond our reach, may result in pus tubes, leakage from which may set up a more or less extensive peritonitis. Two cases of this description came under my observation during an outbreak of septicæmia which occurred in the Montreal Maternity in the fall of 1894. The symptoms fortunately did not point to any serious general infection, and the cases were transferred to Dr. Wm. Gardner's wards in the Royal Victoria Hospital. He operated in both cases, removing the tubes, which were enormously distended with pus, with a successful result.

In both of these cases there was evidence of previous gonorrhœa.

In another class of cases we have the infection spreading to the lymphatics of the broad ligaments, and there becoming localized resulting, in many cases, in abscess formation. When the general septic condition is not marked in these cases, the question of opera-

tion must be considered. Three cases of this class have come under my observation, and in all three I adopted the expectant plan of treatment, as the symptoms did not point to any marked general septic infection. Rupture of the abscess into the vagina resulted in two of the cases, and in the third, the purulent discharge came from the uterus, but all three cases made a good recovery and have since done well.

When there is evidence of abscess formation, and the general condition of the patient indicates that there is an increasing degree of septic absorption, the better plan of treatment would be, in my opinion, abdominal section, as permitting one to more thoroughly get at the conditions present in the case, though many prefer to evacuate the abscess from below, through the vagina.

There is a certain rare class of cases met with, where the original septic endometritis, spreading to the lymphatics of the uterus itself, results in a condition of purulent metritis. Hysterectomy has been undertaken for this class, chiefly by American operators. Dr. Baldy,[1] of Philadelphia, has collected reports of nineteen such operations with a result of seven successful cases.

The difficulty with regard to the adoption of operative treatment in acute cases is the impossibility of accurately gauging the degree of septic absorption which has occurred. Marked enlargement of the area of splenic dulness, with great reduction of the red corpuscles, associated with a weak, rapid pulse and high temperature, would contra-indicate any surgical interference, no matter how favourable the local conditions might apparently be.

Serum-therapy has been employed with good effect in a few instances recently, but the cases have been too few to enable us to form any opinion as yet of its value.

To sum up, thorough cleansing of the infected uterine cavity by means of the blunt curette and brush, followed by copious antiseptic douching, the introduction of an iodoform bougie and gauze packing, is, in the opinion of the writer, the best method of treatment of puerperal septic endometritis.

When such treatment, persisted in for 24 to 48 hours, does not produce a lower range of pulse and temperature curve, or tend to promote uterine involution, the question of surgical interference must be seriously considered.

[1] Baldy, Removal of the Uterus and Annexa for Puerperal Sepsis, *Am. Gyn. and Obstet. Journal*, Vol. VI., page 25.

ON SO-CALLED SPONTANEOUS OR IDIOPATHIC CHELOID. WITH THE REPORT OF A CASE.

BY

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(From the Molson Pathological Laboratory of McGill University.)

"Pathologically," says Fagge, or more truly Pye-Smith, "cheloid is not a mere hypertrophy nor a granuloma, but a fibro-cellular new growth, a true sarcoma, sometimes consisting chiefly of spindle cells, sometimes more exclusively of fibres. It has two characteristic marks of sarcoma apart from its histology—it is very apt to recur again and again after removal; while on the other hand it does not reappear in the neighbouring lymph glands or in the viscera."

While the above statement is perhaps a little extreme, inasmuch as it tends to include cheloid among malignant growths, nevertheless it very clearly indicates what cannot be gainsaid, that cheloid formations, whether true or false, possesses characters which we associate with true tumours. It is the continued local overgrowth of connective tissue cells, without the evidence of continued irritation or other cause, that is the special feature of these curious neoplasms.

Every since the first full study by Alibert, at the beginning of the century, there has been difficulty and debate in assigning to cheloid growths a satisfactory place. As is well known, there may be extensive and redundant connective tissue formation in connection with scars and burns and other injuries of the skin and subcutaneous tissues, and the histological appearances of these new growths, which are the results of traumatism, may be identical with those of the true cheloid of Alibert in all respects save one, namely, that in true cheloid the hyperplasia is unconnected with any clear indication of involvement of the epidermis. In the false cheloids we find evidences that the skin immediately above the growth is of the cicatricial type and is deprived of its papillæ, whereas in true cheloid the tumour is covered with normal skin, unaltered, save by stretching and flattening in such cases as those reported by Crocker and Babes, where the tumour has rapidly attained a large size. It is this fact that the false cheloids clearly develop as a result of primary traumatism that has for long made observers unwilling to classify them as true tumours and to seek to separate them sharply from the true cheloids, in which

trauma would not seem to have played so important a part; nevertheless the conviction has been steadily growing that the true cheloids have equally a traumatic origin, and thus a study of these forms of growths, both true and false, assumes an especial importance in connection with the primary causation of true neoplasms in general.

It is the modern English and German dermatologists more especially who have emphasized the impossibility of making an ætiological distinction between the true and the false growths. Foremost among these is Jonathan Hutchinson, who states definitely that cheloid cannot exist "without being a disease of scar, no matter how minute the scars may have been." He describes a case (that of Mrs. G.) where the growth originated as as a little pimple; growth was slow, but resulted in the production of a typical cheloid mass four inches long and one and a half inches wide. At the end of twenty years it was still aggressive at the greater part of its border, was "itchy" and often painful. Crocker also concludes that the division of true and false cheloid is unsound, both from clinical and anatomical grounds, for true cheloid may be caused from unnoticeable injuries. Van Harlingen, of Philadelphia, states that he has never seen a case of spontaneous cheloid, and holds that cheloid can never occur save as a sequel of cicatricial formation. Unna emphatically remarks that the condition is never spontaneous ("ueberhaupt wohl nie spontan"), and he adds that the apparently spontaneous isolated cheloids of the sternum (the most frequent region of development) are the effects of scratching on account of seborrhœal eczema of the sternal region.

The pathological anatomy of the so-called spontaneous and of cicatricial cheloid is the same. Both are composed of bundles of connective tissue, forming a close network, and of a certain number of fusiform cells. The relative proportion of the two elements depends upon the age of the growth. In the older growths fusiform cells are rare, while in recent cheloid they are numerous, sometimes forming nests in the meshwork of the connective tissue. The more recent the growth, the more vascular and the nearer the approach in structure to sarcoma; the older the growth, the closer its resemblance to a pure fibroma.

But while thus histologically the two forms may be identical, and while this view exists that ætiologically no true distinction can be drawn, it must be added that there are still firm adherents to the view that cheloid may arise spontaneously.

Thus Ohmann-Dumesnil reports the case of a mulatto who was vaccinated on the right arm when three years of age. When the

vaccination healed it left a small tubercle on the site of the scar, and at eight years of age the tubercle began to enlarge and continued to do so until it became the size of a silver dollar in circumference; then new growths began to appear on the right arm only and continued to enlarge. They next appeared upon the breast, then upon the hips, next upon the left arm, then upon the face, and followed the same course as the above tumour. Small tubercles appeared in various regions, and developed into cheloid tumours in their turn, until at last they became very numerous.

The tumours were of a doughy feel and freely movable upon the subjacent connective tissue, and they seemed to be entirely unconnected with the fascia of the muscles or the intimate connective tissue which binds this fascia to the overlying structures. Handling the tumours did not cause pain, unless neuralgia was present at that particular time, when the tumours were very sensitive. After a tumour reached a certain period of growth it began to throw out claw-like prolongations from its periphery, (whence the condition derives its name,—"chele," a crab's claw).

In this case there was no history of any injury whatever, not even a cut or a scratch, except at the point of vaccination. Taking these facts into consideration, Ohmann-Dumesnil came to the conclusion that the growths appeared spontaneously, and he considered it positive proof that the case was one of idiopathic cheloid.

In the *Gazette des Hôpitaux* for 1890 Plicque argues strongly in favour of the existence of spontaneous cheloid. While he acknowledges that the two varieties run into each other, and that an entirely spontaneous character is difficult to prove, he considers that the observations of Kaposi, Erasmus Wilson, Vidal and Schwimmer, including 72 cases in all, leave no doubt as to the existence of true spontaneous cheloid. In Schwimmer's case, referred to by him, the patient developed 150 cheloidal tumours, varying in size from that of a pea to that of a hickory nut, within six years. The lesions were seated on the right lateral thoracic region. The unilateral distribution and a great number of the growths appeared to negative the view of a cicatricial or traumatic origin.

A discussion of the relative value of these two opinions regarding the nature of spontaneous cheloid will perhaps best be undertaken after I have described the case which has come under my observation.

L. Le B., aged 20, milliner, is one of a family of eight children, Her father and mother are alive and well. The family history is good, with the exception that her grandfather had a white lump removed from his left eyebrow, the nature and characteristics of the

growth not being known. The patient has had the diseases of childhood, measles, whooping-cough, etc., but otherwise has always been healthy until about four years ago, when she noticed a very small growth which looked like a little pimple on her left shoulder. This growth gradually enlarged and in about a year began to be painful (sharp stinging pains) and became very full of small blood vessels.

It now grew very rapidly, and in another year it was two inches long and three-quarters of an inch wide, and was then removed by the knife. In about three weeks it recurred and was as large as it had been previous to operation, and full of small vessels; it was also painful. In about four months it was again cut out, and it returned even sooner than before and was as large as ever. In three or four months the growth was once more removed, but this time by means of a "plaster." It has never returned, but there remains a very large flat cicatrix, which is larger than the tumour ever was. The patient was then free from any growth until about a year ago, when she noticed another coming in the form of a small pimple on the outer side of the right arm just above the elbow.

This growth gradually enlarged and was there for about nine months. On April 15, 1895, Dr. J. H. Duncan, of Chatham, Ontario, very kindly asked me (then unqualified) to accompany him, when we saw the case for the first time.

Upon examination, a well-marked cicatricial tumour was found about one inch long and one-third of an inch wide on the outer side of the right arm just above the elbow. This tumour was white, glistening, oval in shape, harder than the surrounding tissue, and was elevated about one-tenth of an inch above the skin; the edges of it where it joined the skin were irregular and appeared like little claws. She complained of it being itchy and painful.

Upon further examination another tumour was found on her back directly in the median line over the second lumbar vertebra. This growth was about the size of that upon her arm, had the same characteristics and was painful and itchy. When we made the skin tense and with the light shining on it we noticed, principally on the outer side of the right arm, in several places, clusters of flat, small, round, cicatricial spots which were white and glistening. There were several clusters of these and each cluster contained about four or five spots. The skin being relaxed these clusters were unnoticeable. Dr. Duncan removed the tumour from the right arm and I brought it to the Pathological Laboratory of McGill University, and prepared specimens from it for microscopical examination.

The patient was put on a treatment of eight grain doses of citrate

of iron and cinchonidine after each meal and a dessertspoonful dose of "Startin's Mixture" (mag. sulph., ferri sulph., acid sulph. dil., tr. gentian. co., aqua) before meals. She was also given potassium iodide ointment to apply externally.

I saw the patient again on July 24, 1895. Her right arm was not yet entirely healed, there being a scab covering what promised to be a large cicatricial surface. Upon further examination I found that the clusters we had seen upon tension of the skin had all disappeared and there remained only the tumour on her back, which was also gradually diminishing in size. Before leaving the patient I made a few small needle scratches in her left arm, for the purpose of noting her proneness to scar formation. The scratches were not deep enough to draw blood. I saw the patient on September 25, 1895. The scab had fallen from the wound on the right arm, and there remained a very rough cicatrix, which was much more extensive than the original wound. On her left arm, where the needle scratches had been made, the tissue was healed, but I could distinctly recognise little nodular lines of cicatricial aspect. These lines were composed of rows of little papules at the site of the previous needle scratches. The patient when I last saw her was enjoying perfect health, the only growth remaining being the one on her back, which was gradually becoming absorbed.

Microscopical Examination of the Excised Cheloid Mass.—I prepared and examined sections of the growth, and came to the conclusion that I was dealing with a characteristic dense connective tissue overgrowth, but to make assurance doubly sure I submitted my specimens to Dr. Wyatt Johnston, who favoured me with the following report: "In the subcutaneous region there is dense fibrous tissue arranged in bands showing very few nuclei. These fibres have an irregular, wavy course, and tend to run parallel to the surface of the skin, rather than perpendicularly. In this fibrous tissue small blood vessels are seen at intervals, both arteries and veins having thickened walls very rich in nuclei.

"There is some small-celled infiltration in the adventitia of these vessels. At a few points throughout the section are bundles of longitudinal fibres with spindle-shaped nuclei. These fibres branch and are possibly cutaneous nerve elements, but nothing can be seen which has the typical structure of a neuro-fibroma. In places there is increase of the nuclei of the corium and the rete layer is well marked and thick. The papillæ are very distinct, and in places the vascular twigs entering them show excessive numbers of nuclei; but as a rule the nuclear proliferation in the vessels becomes less distinct

as they reach the region of the corium. The arrangement of fibrous tissue into bundles is less marked in the corium than in the deeper layers. The fibrous tissue and proliferation of nuclei does not seem to be connected with the hair follicles."

A study of this case reveals therefore the following features:

1. That the primary growth began as a pimple.
2. That the original tumour appears from the history given to have possessed all the features of true cheloid.
3. That there was a peculiarly well-marked tendency to local recurrence after extirpation.
4. That eventually the patient exhibited a predisposition towards the development of multiple cheloid growths, in other regions.
5. That in one case, at least, the development of the "secondary" cheloid growth was seen to follow upon the development of a small red pimple.
6. That scratches upon the skin insufficient to draw blood became the seat of rows of minute nodules, which presumably were hyperplastic and of the same nature as the cheloid growths elsewhere.
7. That upon stretching the skin over the arm, clusters of similar minute nodules could be recognized lying beneath it, which might have been initial stages in the cheloidal growth.
8. That, as in other recorded cases of multiple cheloid, the tumours showed a very definite tendency towards absorption and eventual disappearance.

Studying these features, and comparing them with those of previously recorded cases, it will be seen that so far as regards the origin of the condition there must be very grave doubts here as to spontaneous or idiopathic origin. In this case, as in that of Jonathan Hutchinson, already epitomized by me, the condition originated as a pimple, and the very fact that the existence of such a pimple on the shoulder was remembered by the patient would seem to indicate that it was of an irritative or irritating character; and I do not think that I go too far in presuming that therefore it was of inflammatory nature. There are a fair number of cases on record in which true cheloid has originated around small acne pustules. Lehonneur has recorded a case in which the pressure of a shirt stud was the primary cause; and there are other cases in which similar slight injuries, such as frequent pressure of a basket upon the shoulder and scratches by brambles in picking berries, seemed very clearly to have been the origin of the disturbance. This being so, I gravely doubt whether by any possibility my case can be referred to as one of spontaneous cheloid, and further, the inconsiderable initial lesion in this and in several other

cases makes me doubt whether among the seventy-two cases brought together by Plicque there may not in all have been a primary slight irritative disturbance. That is to say, I am led by a study, not only of this case, but also of the literature of the subject, to agree with Jonathan Hutchinson and the other observers already mentioned, and to hold that the term spontaneous or idiopathic cheloid is a misnomer, and to believe that in every case the *primary* cheloid formation begins around a focus of inflammation. Even in Ohmann-Dumesnil's case, strongly as at first sight it appears to favour the theory of the spontaneous nature of cheloid, it will be observed that the primary growth developed in the cicatrix left after vaccination.

Even where the cheloid formations are multiple the case here brought forward would seem to indicate that similar foci of slight inflammatory disturbance are the starting points of new growths, and the little experiment made by me would, I think, definitely indicate how very slight the inflammatory disturbance need be in order to lead to this hyperplasia of connective tissue.

This same experiment makes it equally evident that in this and other cases of multiple cheloid there is a singular predisposition towards connective tissue overgrowth, even where there is a minimal irritation, but this predisposition is a different matter from true spontaneity, and in these cases we have to presume that a slight inflammation, instead of as in ordinary cases leading to a multiplication of connective tissue cells which ceases with the cessation or removal of the irritant, leads to a multiplication which continues long after the primary irritant has ceased to be at work. And it is this character of growth after the cessation of the primary irritation which, it seems to me, removes these cheloids from the class of simple inflammatory lesions and places them, in accordance with Dr. Adami's suggestion at a recent meeting of the Montreal Medico-Chirurgical Society, among the class of true neoplasms.

Whether slight chronic inflammation alone is sufficient to account for all the cheloid growths in this and other cases is a matter which I must acknowledge admits of debate. For example, I cannot satisfactorily explain to myself the causation of the clusters of minute nodules which could be recognized at one period upon stretching the skin over the arm. I have supposed that these indicated the earliest stages in the cheloidal growth. Here I may be wrong, for in the first place I have not found any record or description of similar appearances by other observers; and in the second place it is to be noticed that the little nodules died away without attaining any increased size. But on the other hand, it deserves to be pointed out that the results of scratching the skin led not (as might have been expected) to a uniform

line of new connective tissue development, but to the production of rows of minute nodules very similar to those here described; and it is worth noting also that in Mr. Hutchinson's case of Mrs. G., to which I have already referred more than once, similar though larger papules were to be recognized along streaks which, as the author remarks, looked like "a scratch from a pin which had inflamed." One of these streaks had been present for several years, the other for a year, and Mr. Hutchinson points out that (as I have also found to be the case) the cheloidal mass originates as a small well-defined nodule, which only at a later date, when it has become relatively large, sends out the characteristic "crab's claws" into the surrounding tissue. I am therefore inclined to hold to my belief that these little subcutaneous nodules are to be regarded as the initial stage of the cheloid formation. But that being so, I have, as I say, to acknowledge my ignorance of their exact origin and to leave the matter open, just as I own it is difficult to understand why in Schwimmer's case the 150 or so cheloid nodules were thickly studded over the right lateral thoracic region and developed in no other region of the body. The most I can venture to state is that reasoning from the analogy of those cases in which from the very first the development of these growths has been closely observed, it is possible to assume that in every case there was some preliminary irritation.

In conclusion I wish to thank Dr. J. H. Duncan for the kind assistance afforded me in the clinical study of this case, as also Professor Adami and Dr. Wyatt Johnston for their valuable advice and suggestions in regard to its pathological features.

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CYSTIC TUMOURS OF THE BRAIN FOLLOWING TRAUMATISM—JACKSONIAN EPILEPSY—OPERATION—PERFECT RECOVERY.[1]

BY

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A French boy, aged eight years, was admitted to the Montreal General Hospital complaining of epilepsy and was placed under the care of Dr. F. G. Finley. The following history is taken from the excellent case report of Dr. Gordon Byers.

When fifteen months old, patient fell down stairs, striking himself with such violence on the side of the head as to produce a hole in that region. He remained unconscious for six days and during that time had a squint of the left eye. He then became quite well again in both mind and body. One month later he began to have convulsive attacks, accompanied by temporary loss of consciousness. They occurred about once a week and were often accompanied by loss of control over the sphincters of the bladder and rectum.

At the age of three years these seizures ceased and he became quite well and went to school like other children.

In January, 1895, *i.e.*, at the age of seven, the condition again came on with increased severity, and as a rule he would have five or six fits in a day if the attacks were mild, three or four if severe. Previous to the onset he does not hear noises, see lights, or have any strange sensations, and never knows when the seizures are coming on. The seizures are ushered in by the eyes turning upward, then he stiffens out and falls, the eyes and head turn to the right, clonic spasms come on in the right arm, then in the left, then in the legs.

There is, however, no special order of invasion. He foams at the mouth and often passes urine and fæces, but does not bite his tongue. Following the attack he is "silly-like," limp, and often goes to sleep. Occasionally he is sick at the stomach, cries, and complains of great pain in the back of the head.

During the intervals he is like other children and talks and plays as they do, but is often irritable and cannot be contradicted.

At four years of age he had a severe form of measles.

Inquiry into the family history found no record of nervous troubles or tuberculosis.

[1] Shown before the Montreal Medico-Chirurgical Society, January 10th, 1896.

On October 12, 1895, his condition was that of a well-nourished, intelligent French child of eight years. On the head there was seen a depressed area of bone, oval in shape, just above and in front of the horizontal limb of the Sylvian fissure. It measured 3 cm. from above down, 2 cm. from before backwards. The depressed area presented visible pulsation, not diminished by pressure on the occipital and temporal arteries. This, however, could only be slightly felt, and on light palpation.

Examination of the optic discs showed no evidence of a neuritis or other abnormal changes.

The respiratory, vascular, digestive and urinary systems were normal.

From October 3rd to October 23rd he had six fits, similar in general characters to those described above.

On October 23rd, 1895, he was given chloroform and the head shaved and prepared as usual for operation.

An omega-shaped osteoplastic flap was raised and the dura mater found adherent to the opening in the skull. The opening presented a smooth rounded border. There was no bone found to fill this gap, and the conclusion that it was due to pressure absorption seemed the only one possible. Beneath the gap in the skull were found two thin-walled cysts, each containing about one ounce of clear fluid. The portion of the cyst wall in contact with the cerebrum was very thin, transparent and could not be removed without lacerating the brain. Electrical stimulation of the cerebral cortex in the floor of the cyst and also in the neighbourhood failed to cause any muscular contraction. The osteoplastic flap was replaced, a special opening being provided for the introduction of an iodoform gauze drain. He made a perfectly smooth recovery.

He was discharged on the 10th of January, 1896. The sinus was completely closed. The child had had no fit since the operation and seemed to be in perfect health.

NOTES ON A CASE

OF

TUMOUR INVOLVING THE LEFT CEREBRAL CORTEX.

(From the Medical Clinic of the Royal Victoria Hospital.)

BY

ALBERT G. NICHOLLS, M.A., M.D.,

Resident Physician.

Epileptiform seizures beginning in the right thumb and soon becoming general---Paresis of the Muscles of the right hand and wrist---Anæsthesia and analgesia of the right thumb and forefinger---Impairment of the muscular sense in the right hand---Dysarthria---Aphasia---Slow cerebration---Optic neuritis---Absence of headache and vomiting---Death from chloroform.

The following case presents several features of interest, especially in regard to its clinical course.

Mrs. T., æt. 30, was admitted to Prof. James Stewart's ward in the Royal Victoria Hospital on October 29th, 1894, complaining of loss of power in the right arm, with difficulty in speaking. The history of the illness was as follows :

On June 15th, 1894, while at supper, the patient suddenly felt a sensation as of pins and needles in the thumb of the right hand. A moment later she noticed slight rhythmical movement of the thumb, The subjective sensation passed up the arm, and as it reached the trunk the patient fell down unconscious and the face and limbs became violently convulsed. At the end of half an hour she regained consciousness, and then feeling very dull, fell asleep.

She remained perfectly well for six weeks, when she felt a similar sensation in the thumb. She was on the street at the time and was just able to reach a doorway when she fell unconscious to the ground. General convulsions set in, and the lips and tongue were bitten. On September 24th, a slighter attack took place. A sudden sensation of numbness was experienced and an object which was in her hand fell to the ground. There were clonic movements first of the fingers and then of the arm, but the convulsions did not become general, nor was consciousness abolished. It was only after this third attack that any difficulty in articulation was observed.

In October the patient had difficulty in grasping objects with the right hand. At no time was there either headache or vomiting.

On admission the patient was found to be a well-nourished, healthy-looking woman, but cerebration was distinctly slow. The vascular, digestive and urinary systems were normal. The nervous system presented very interesting abnormalities. There was a dull, heavy sensation in the head which was not very severe, and affected both sides equally. Intelligence was good, but apprehension was slow.

Motor Symptoms—There was marked paresis in the right hand, flexion and extension of the fingers being much impaired. The dynamometer showed the power of the right hand to be 25°, of the left 35°. Flexion and extension of the right wrist were also weak, but to a much less extent ; flexion and extension of the elbow were only slightly affected. There was distinct paresis of the right half of the face and tongue, the frontalis escaping.

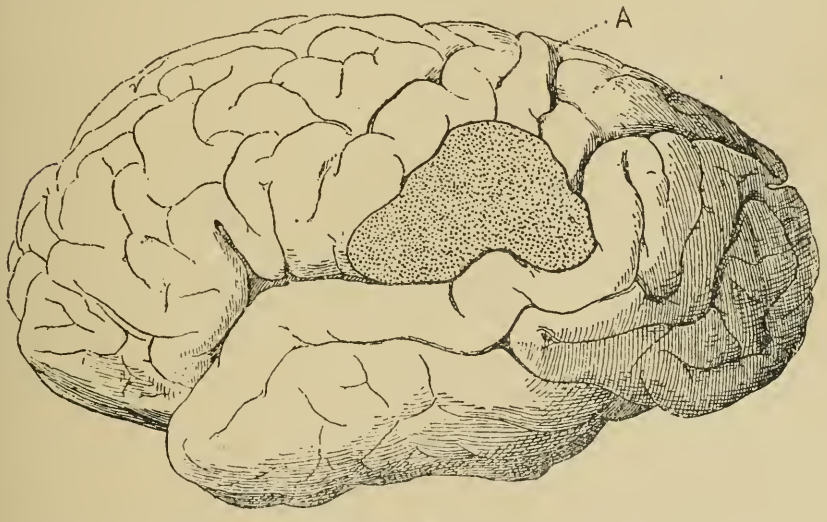

Fig. 1. Left Hemisphere. A., Fissure of Rolando. Stippled portion, Tumour.

Sensation—There was a subjective sensation of numbness and tingling confined to the right thumb and forefinger. Sensibility to touch and pain was completely absent over the dorsal and palmar surfaces of the right thumb and forefinger. Considerable ataxia was observed in the movements of the right arm. With the eyes shut she was unable to say in what position her right arm was placed when moved about, while she could readily and accurately localise the position of the left. When the left hand was placed in a certain position she was unable to execute a similar movement with the right.

Special Senses—The pupils were unequal, the right being slightly the larger. Accommodation was normal, and there was no oculo-motor paralysis. Fundus oculi normal.

Speech—There was considerable dysarthria. Vocalisation was thick and elided, there being great difficulty in pronouncing the liquids. In addition there was a trace of motor aphasia. Patient had a good command over ordinary language, except that she had some difficulty in remembering the names of objects. There was no trace of sensory aphasia discoverable.

The clinical course was as follows :

Nov. 21st. Degree of anæsthesia much less. Power of flexion and extension of the fingers was poor, with considerable weakness in

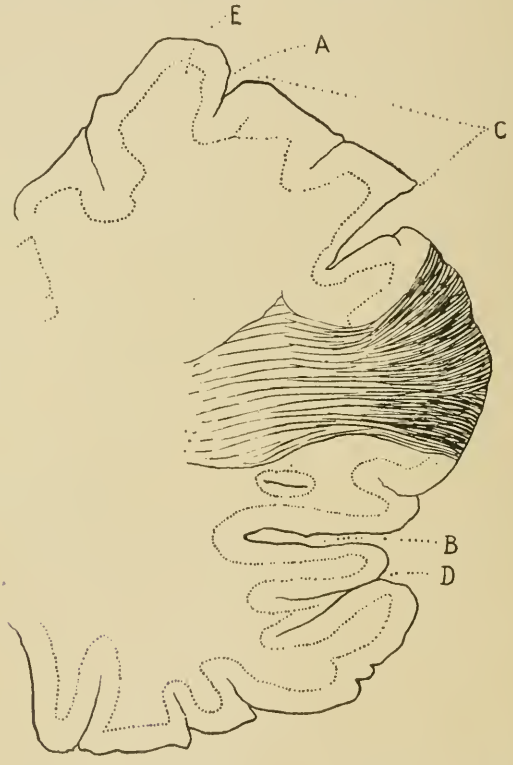

Fig. 2. Transverse Section. A Fissure of Rolando. B Fissure of Sylvius. C Ascending Parietal. D Parallel Fissure. E Upper Extremity of Ascending Frontal.

flexion and extension of the elbow. Ataxia more extreme, and muscular sense more impaired. Dysarthria and motor aphasia more marked, and the patient now has difficulty in remembering ordinary simple words. There is beginning sensory aphasia.

Nov. 26th. Low grade of optic neuritis in the left eye ; very pronounced in the right.

Nov. 28th. Had slight clonic spasms in the muscles of the right thumb and forefinger ; did not become general.

Dec. 1st. Slight twitching in the right thumb and forefinger and in the right half of face. The attack lasted half a minute.

Dec. 2nd, Marked sensory aphasia now and the patient appears to be unable to understand written or spoken language. Motor aphasia as before. Patient replies to every question automatically, " I can't get better." Cerebration is very slow and the patient is becoming stuporose.

Dec. 6th. All the above mentioned symptoms accentuated.

Dec. 13th. Stupor almost complete. While being anæsthetised the patient died suddenly.

Dr. Adami has kindly allowed me to refer to the notes of the autopsy, which was performed by him.

Nothing was found bearing upon the case in any of the organs except in the brain.

The vessels in the meninges were full of fluid blood. The dura was slightly adherent to the central portion of the left hemisphere ; the pia was intact. At the point where the dura was adherent, a tumour was found which presented as a reddish purple mass, slightly elevated above the general brain surface. It measured 6 c.m. in its greatest antero-posterior diameter, and 5.7 c.m. in the greatest vertical diameter. The surface was dark and mottled, and the tumour felt softer and much more uneven than normal brain tissue.

Microscopically the tumour was found to be an infiltrating sarcoma of a mixed type, oval and spindle-shaped cells predominating. In the deeper portion, where the growth was extending, the cells were of the small round variety. The blood vessels in parts were large and congested, many presenting evidences of hyaline degeneration and filled with hyaline clot. In other portions the vessels and lymphatics were surrounded by circular masses of embryonic cells in their lumina. The nerve elements in the neighbourhood were degenerated, and in parts gave evidence of necrosis and hyaloid or colloid change. The pia was thickened, but was not infiltrated. The tumour had evidently extended by direct growth and also by invasion along the blood-vessels and lymphatics.

As shown in the accompanying figures, it will be seen that the new growth occupied the lower two-fifths of the motor area, involving directly the centres for the face and hand. The depth to which the tumour extended was considerable, and its structure was denser at the periphery, while in the deeper parts it gradually merged into the brain tissue, the sarcoma cells being widely separated.

The order in which the different physical signs developed was interesting ; convulsions beginning locally, followed by local paresis, local

anæsthesia, dysarthria, motor aphasia, ataxia, impairment of the muscular sense, sensory aphasia, optic neuritis, stupor and death.

It was easy from this train of localising symptoms to diagnose a gross lesion affecting the motor area, beginning in the centres for the hand and face, and involving later those for the arm, with probably involvement, through pressure, of Broca's convolution, and the supramarginal and angular gyri. By the history and therapeutic tests syphilis was excluded, and the rapid growth of the tumour rendered a diagnosis of sarcoma almost certain. This diagnosis was exactly corroborated by the results of the autopsy.

An interesting feature, and one worthy of special attention in this case, was the marked anæsthesia in the thumb and forefinger of the right side, together with the disturbance of the muscular sense in the right hand. It will be seen that the tumour involved the cortex somewhat posteriorly to the ascending parietal convolution, involving a district not generally included in the motor area. No doubt disturbance of sensation may be present in growths confined to the motor area, but where anæsthesia is a very marked symptom, it is highly probable that there is involvement of cortical substance for some distance posteriorily to the motor area proper. Disturbance of muscular sense, when marked, points in all probability to involvement of the same part.

In the clinical accounts of cerebral tumours, one rarely meets with a detailed description of the condition of sensation and muscular sense in the extremities.

It is important for exact diagnosis that they should receive as careful examination as the more common and well recognized symptoms of paresis and spasm.

FŒTAL EVENTRATION.[1]

BY

W. W. Alexander, M.D., Lachute, Que.

Mrs. M., aged 21, primipara, came under observation January, 1896, She was of medium height and gave a history of good health, both preceding and during pregnancy.

Her last menstrual period was from June 10th to 13th, 1895. Labour pains began at 2 p.m. January 28th, but were preceded by pains in the abdomen and back for twelve or fourteen hours. On examination the uterus was found very large and evenly distended, filling the whole abdominal space to the ensiform cartilage. By palpation the head was detected in the upper part of the uterus, and a diagnosis of "breech presentation" was made. The fœtal heart sounds were not audible, neither had the patient felt fœtal movements during the past twenty hours.

On internal examination the os was found patulous, easily admitting the point of the index finger. The membranes felt full and bulging so that no presenting part could be reached. At 8 p.m. the liquor amnii escaped, the flow being abundant, I should think at least a gallon being passed. An hour and a half later labour was completed by the delivery of this monster (dead), which presents the following peculiarities:

The head is large, showing a moderate degree of hydrocephalus, but otherwise perfect in its formation. The thorax, shoulders and upper extremities are of normal formation. The anterior and lateral portions of the abdominal wall arre absent, the stomach, intestines, liver and other abdominal organs being entirely exposed, save for a thin membrane, continuous with the umbilical sheath, which covers over the left upper part of the umbilical and epigastric regions. Below, the absence of the abdominal wall is continued over the pubic and perineal regions to a point just behind the anus, so that the large intestine can be traced down through the sigmoid flexure and rectum right to the anus. The liver is large and placed quite outside and below the costal margin.

The left lower limb terminates in a conical stump (which is quite healed over), either just at or immediately above the knee-joint. The hip-joint on this side moves freely, but on the opposite side the joint will not permit the right leg being extended, and moved freely, except

[1] Shown before the Montreal Medico-Chirurgical Society, February 4, 1896.

when the leg is abducted to a right angle with the body, or with the foot in the neighbourhood of the shoulder.

The umbilical cord was 10½ inches in length, and was broken in two during delivery. The placenta was passed in a quarter of an hour and presented no peculiarities, except that it was very large.

There was in this case no history of maternal impression, which has always been held by the laity as a cause of monstrosity. The frequent association of hydramnion and hydrocephalus with the various monstrosities has led some observers to assign it as a cause, but whether one produces the other, or whether both are dependent on some common cause, has not yet been determined.

Experimental embryologists endeavour to classify the various monstrosities met, from cause. To produce a perfect embryo a perfect ovum and a perfect spermatozoon are necessary. Syphilitics and sufferers from other constitutional affections, often do transmit these tendencies through a single cell. The development of an embryo may be interfered with, producing malformations—the earlier the interference the greater being the deformity. These interferences may be mechanical (injuries, attempted abortions, etc.), or such as prevent the embryo receiving its necessary nutritive supply.

Intense emotional excitement and maternal impressions, are still considered by some as causative.

Ephemerides, 1895.

By William Osler, M.D.

IX. Tobacco Angina.

Considering the wide-spread use of tobacco, it is extraordinary how rare are toxic effects. In hospital and private work combined I do not see half a dozen cases in a year in which the symptoms are directly due to the habit.

The manifestations of the so-called tobacco heart are usually disturbances of rhythm, increase or diminution in the frequency of the beats, and pain. In young boys, who smoke cigarettes, the irregularity and palpitation are often associated with anæmia, and there may be a systolic murmur at the apex with signs of slight enlargement of the heart.

The pain of tobacco heart, usually sharp and stabbing, may occur without any palpitation or irregularity, is frequently nocturnal, and in many smokers is the very first indication that the limit of toleration has been reached. Attacks of cardiac pain of such severity as to warrant the designation of tobacco angina are, in my experience, very rare, and the term should be limited strictly to cases in which all the prominent features of an anginal attack are present; not every form of severe heart pain due to tobacco should be called angina. An excessive smoker may be attacked suddenly with palpitation, rapid action of the heart, and a sensation as though the organ were "running down," and with this there may be much oppression in the chest, and a gasping respiration. I have known such an attack, coming on abruptly, without any warning, to begin a series which has continued for months, and which necessitated the giving up not only of tobacco, but also of tea and coffee.

In other cases pain, without disturbance of the rhythm of the heart, or any subjective sensation of palpitation, is the most prominent symptom; thus, a young man, aged 29, began nearly five years ago to have nocturnal attacks of severe pain about the heart. It was suggested at that time by his physician that the excessive use of tobacco was the cause, and they disappeared entirely when he gave up the habit. He has been smoking now for nearly a year, and has had the attacks again at intervals. Just after falling asleep he is awakened with a severe pain in the region of the heart, which almost takes his breath away, and makes him cry out loudly. It rarely lasts

more than a minute or two. The heart's action is rapid ; he never has any sweating ; he does not change in colour, nor do the hands and feet become cold ; he has never had any pain down the arm. The attacks have never followed exertion. He has occasionally had transient attacks in the day time. He feels confident that tobacco is the sole cause, as when he stops for three months the attacks disappear.

The following case is a type of what may be termed the true tobacco angina :

T. W. J., aged 45, seen June 12th, 1895. Patient is a very vigorous, healthy-looking man, who has enjoyed uniformly good health. In November he had influenza and felt wretchedly for two months. He has been a heavy smoker since his fourteenth year. Some years ago he stopped for one year, as he had attacks in bed in which he felt as though the heart had stopped, and he would have to jump out of bed and gasp for breath. He got well and has smoked ever since.

On the 6th of January he had a sudden, severe attack, to which he attributes his present nervous condition. He had been smoking on an average twelve strong cigars a day. The attack began with a peculiar feeling in the chest, not exactly pain, but great distress. He turned pale, belched gas constantly, perspired, was cold, and he could not lie down, and felt as though he was going to die. He had no agonizing pain, but he felt a sense of terrible oppression, and had numbness in the hands and wrists. The heart's action during this attack was scarcely perceptible, the pulse very feeble and fluttering. It lasted altogether two or three hours and alarmed him very much. For several days afterwards he felt prostrated and weak, and for a month he had a sort of faint feeling, particularly after eating. These faint attacks have distressed him very much. They would come on at intervals, and he would turn pale and sweat profusely. He never has actually fainted in them, but one day in the barber's chair he very nearly lost consciousness. They recurred for about two months after his severe attack. He has been very nervous and uneasy about himself and has been greatly worried. He has stopped tobacco since January 6th.

The patient was a robust-looking man, of good colour, and very strongly built; there was no arterio-sclerosis. The apex beat was within the nipple line, visible, readily felt, of normal intensity ; there was no increase in the cardiac dulness. The heart sounds were clear ; there was no accentuation of the aortic sound. There was no enlargement of the liver and spleen.

Up to April 17th, 1896, when last heard from, this patient had had no return of the severe attacks and had been better in every way.

Huchard, whose section on angina pectoris due to tobacco is the most exhaustive in the literature (*Traité des Maladies du Cœur*, 2nd edition), states that it is most commonly of the vaso-motor type, accompanied with extreme pallor of the face, vertigo, contraction of the pulse, a tendency towards syncope, chilling of the extremities and cold sweats. He recognizes, in addition to the functional form, an organic tobacco angina, in which the attacks occur in men with pronounced sclerosis of the arteries.

I have never known a fatal instance of angina pectoris which could be directly traceable to tobacco. I know, however, of two cases of sudden death in men only a little over thirty, both very vigorous and active, who were not known to have heart disease, and both of whom were most excessive smokers. In neither case, unfortunately, was an examination made.

In connection with this question of smoking I would like to enter a protest against the indiscriminate abuse of what Ben Jonson calls "the most sovereign and precious weed that ever the earth has tendered to the use of man,"—particularly in the form of the cigarette. In the *British Medical Journal* for February 15th, 1896, there is an extract purporting to be taken from a paper by Dr. G. F. Shrady, in which he says, "To smoke a cigarette is to use tobacco in its very worst form. It will produce physical irritability and mental and moral strabismus." As a cigarette smoker of some twenty-four years standing, I would like to make the counter-statement, that to smoke a cigarette (a good one, of course!) is to use tobacco in its *very best form*, and that in moderation it soothes physical irritability and corrects mental and moral strabismus.[1] The inference is obvious, *quoad* the editor of the *Medical Record*, at least from my point of view,

X. Unusually Persistent Oxyuris.

From its habitat, this parasite is, as a rule, one of the easiest to dislodge. There are cases, however, in which it resists all attempts, and the condition becomes chronic. It is Finlayson, if I remember correctly, who reports the case of a man aged 40, who had suffered with thread worms from his childhood, and had failed to get relief at the hands of many prominent helminthologists. Until last year I had never met with a chronic case. The following is an instance in which the worms persisted, in spite of vigorous treatment, for three years and a half :

Mr. X., aged about 25, consulted me January 15th, 1895, complain-

[1] I am speaking of adults. Boys and young men are better without tobacco in any form.

ing of seat-worms, with which he had been troubled for two years and a half. He had the usual symptoms of itching and irritation, particularly at night and after exertion. He had consulted a great many physicians, and had used nearly every remedy which has been recommended. As a rule after the use of injections, such as quassia, he would have freedom for a week or two; then the symptoms would recur again, and he would see the parasites in the stools. Once he thought they had disappeared for nearly three months, after the use of quassia injections every day for nearly three weeks. In September he again made a systematic attempt to get rid of them, using the strong quassia infusions, a quart at a time, and retaining the injections for about half an hour. Since that date he has not seen any worms, and he considers himself cured.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Some Recent Studies in Malaria.

W. S. Thayer and J. Hewetson. "The malarial fevers of Baltimore."—*Johns Hopkins Hospital Reports*, Vol. V., 1895.

L. F. Barker. "A study of some fatal cases of malaria."—*Johns Hopkins Hospital Reports*, Vol. V., 1895.

P. Manson. "The Goulstonian lectures on the life history of the malaria germ outside the human body."—*British Medical Journal*, March 14 and 21, 1896.

Nearly half a century ago Meckel, while examining the blood of a malarial patient post-mortem, observed certain granules of black pigment, many of them apparently within rounded or oval-shaped masses of protoplasm. There is but little doubt that these were the parasites of malaria and that this records the first observation of its kind on the causation of the malady. Three years later another observer noted the constant presence of this pigment in malaria, and recognized a definite relationship between malarial infection and pigment in the blood.

It was not, however, until thirty years afterwards that similar examinations revealed for the first time that a parasite was in truth intimately associated with the presence of the pigment, although for a considerable period previously the disease had been looked on as infectious in nature. Before Laveran's discovery, indeed, Klebs and Crudeli endeavoured, though without success, to prove a bacillary origin for malaria, but to-day there are few authorities unwilling to coincide with the view, first expressed by Laveran, that an animal parasite is the true cause of the disease. Its discoverable presence in so large a percentage of cases, and its absence in all other diseases is of itself of so much importance that with the further knowledge of its life history and relation to the clinical manifestations of the

malady, it seems unnecessary to doubt its etiological significance. The additional fact that inoculation experiments from man to man with malarial blood have repeatedly succeeded still further strengthens that view.

We are not, however, in possession of all the facts necessary for the complete proof of the theory, and hence a few authorities remain who persist in attributing the disease to other causes, although recent work has done not a little to enlighten us further in the life history of the malarial plasmodium.

The means whereby the organism enters the body still remains a mystery. It is obvious that the predisposing causes, local, seasonal and climatic, are of no small importance, as are also the possibilities, even probabilities, that the parasite effects an entry by means of inspired air and ingested food-stuffs. Further than this, it has seemed impossible to do other than theorise, while cases of direct contagion, as described by Sawyer and Eichhorst, remain still unique, where inhabitants of non-malarial districts succumbed to the disease from communication with newly-arrived though healthy natives of infected places.

The presence of the organism in the body, its appearances, varieties and distribution are likewise features of interest, as is also the coincidence of certain of the clinical symptoms with stages in the development of the parasite. Recent researches, though not offering a great deal that is new, have nevertheless most completely confirmed many of the theories of former observers, and have added valuable suggestions along the lines of the pathology of malaria.

By what means the parasite enters the red corpuscle when once it reaches the blood is dubious, inasmuch as no authentic account records accurate observations of the phenomena. The subsequent development of the plasmodium is however clear, and the conclusions may be briefly summarized as follows :

Just as there are three main clinical types of malarial fever, the tertian, quartan and irregular, so also are there three main forms of the plasmodium malariæ, each distinct from the other and not interchangeable. Frequently repeated examinations of the blood, in any of these forms of the disease (for example, in the more common variety seen in America, viz., the *tertian ague*, where paroxysms occur on alternate days) enable us to observe with considerable accuracy various stages in the life history of the malarial organism. Commencing immediately after a paroxysm, small rounded hyaline bodies are observed in the red corpuscles ; they are often actively amœboid. A few hours later, by repeating the examination, the blood will reveal the presence of pigment in the periphery of the parasites,

while the red cells in which they lie become gradually paler. Later on, i.e., before 48 hours from the onset of the paroxysm, the spore formation is seen. This manifests itself by radial striations in the periphery and a central aggregation of the pigment, while soon small round highly refracting spherules (the spores) become visible, break away from the decolorized corpuscles and are each prepared as the newly created hyaline body to invade other red cells. Such is the usual cycle of the tertian parasite, a cycle lasting about 48 hours. So regularly does this cycle occur that by examining the blood we can state with very fair accuracy the stage in the progress of symptoms; and likewise, vice-versâ, by knowing the time of the previous paroxysm we can affirm at what stage of its development the parasite may be found at any given time. Thus for example the presence of segmenting forms is practically synonymous with an impending paroxysm.

The parasite of *quartan fever* has a few essential differences from that of the tertian variety. Its cycle, lasting 72 hours, implies that the paroxysms shall appear only on every third day. Further, the pigment which developes is not only coarser, but developes earlier and is less motile. There are also fewer spores formed, though each is in itself larger than those of the tertian variety. It would appear too, that quinine is, for the most part, less effectual in overcoming the quartan plasmodium than that of the tertian ague.

Where daily paroxysms occur (quotidian ague) there is no new form of parasite present, but the phenomenon arises when two or more different groups of parasites invade the blood on successive days. Under such conditions, if a so-called double tertian infection has occurred, there will be a constant daily maturation of parasites, and hence daily paroxysms. If the quartan parasite similarly invades the system on successive days, we may have double or triple quartan ague, according to whether two or three separate groups of quartan parasites have entered the blood. In the irregular type of malaria—sometimes called *æstivo-autumnal* fever on account of its frequency at that period of the year—there is likewise a small hyaline body which however in its development tends frequently to form crescents. Clinically this form of malaria is characterised by great irregularity in the advent of paroxysms, by being irregular in the type of fever, and by assuming often very grave pernicious forms tending to chronicity and malarial cachexia. The irregular onset of the paroxysms is apparently due to the irregular sporulation of this form of parasite, and likewise to the frequent invasion of multiple groups of organisms. The cycle of life is not yet accurately determined, but seems to vary between fairly wide limits—though mainly between 24 and 48 hours. Clinical examination of the blood is often unsatisfactory in such cases,

inasmuch as the organism matures mainly in the viscera, while the blood of the finger tips rarely shows sporulated forms.

The crescentic forms which appear to develop from the hyaline bodies are not well understood. From recent researches, however, it would seem that they are formed only after the first week of the disease, that they do not *per se* give rise to fever and chills, and that they are never the cause of the relapses, inasmuch as, under all these conditions, the small round hyaline bodies are likewise present. No one has ever observed them segmenting, while frequently they manifest degenerative changes in the form of gemmation and vacuolation. Quinine, too, has less effect on this variety of plasmodium than on any other form, and it has been noted that where that drug was administered during the first week of the disease, the hyaline bodies, which alone had been present up to that time, have disappeared without giving rise to crescents.

All varieties of malarial parasites may give rise to flagellate organisms, *i.e.*, projecting filaments are formed at one or more peripheral portions of the plasmodium and after a time may become free, showing at the same time great power of locomotion, not unlike the spirilla of relapsing fever. Some very recent work has given to these flagella a place of very great importance, and while Thayer and Hewetson, with many others, incline to the view that flagella are degeneration products of the parasite, Manneberg, Dock and, above all, Manson, regard them as the result of a physiological process and one of great importance to the future existence of the organism. To this, reference will be made later.

Much importance justly attaches to the distribution of the malarial parasite in the body, and Barker in his admirable study on the subject has not only confirmed many previous theories, but ventures further valuable suggestions concerning the irregular symptomatology of the disease. Councilman and others have long since shown that in many of the irregular forms of malaria the parasites, while abounding in the viscera, are often in very small numbers or even entirely absent in the peripheral circulation, and hence must readily escape notice in ordinary clinical examination of the blood. Such, too, has been the recent experience of Dr. F. P. Maynard, of the Indian medical service, inasmuch as out of some 70 cases which he states were carefully and patiently examined, he had failed to find the organism in more than 25 per cent., and although this experience is more unfortunate than most of the other observers, yet it is doubtless worthy of a note as illustrating the necessity for painstaking and often prolonged examination of the blood. The distribution of the parasites in the body has a significant clinical value as explaining

many obscure symptoms and in affording a more satisfactory idea of the prognosis. It is known, for example, that in quartan ague the parasites are distributed throughout the whole body with much regularity, and the numbers observed in the peripheral blood enable one to estimate with tolerable accuracy the number in the whole system, and hence the extent and severity of the infection. In tertian fever, on the other hand, the parasites tend to accumulate more in the internal organs, while being in but moderate numbers in the peripheral blood. In this way the presence of large numbers in the blood from the finger tips would likewise indicate an unusually grave attack.

The æstivo-autumnal variety manifests a notoriously irregular set of symptoms, corresponding with which we can readily observe a most irregular distribution of parasites in the body. Among the well-known instances of such atypical manifestations is the malarial coma, which has been shown by Councilman and others to be often associated with plugging of cerebral capillaries with plasmodia. As in the case of coma, so in other conditions, as transitory aphasias, various paralyses and obscure instances of sudden death, the symptoms may readily be attributed to the invasion of capillaries leading to the parts controlling the various cerebral functions. What applies to the brain may readily be assumed for other organs to account for the numberless variety of nutritive and functional disturbances influencing the course of the malady. In one of Barker's cases parasites in unusually large numbers were found filling the vessels in the mucous membrane of the stomach, and in corresponding places on the surface there were areas of necrosis. Such conditions, he suggests, (as have also the Italians) will readily explain all manner of gastro-intestinal disorders which so frequently accompany the pernicious forms of malaria.

To account for the unequal distribution of the parasites is a more difficult task, for it would seem to depend upon a variety of combining factors, among which may be considered mainly the alterations in the circulation and in the calibre of the vessels, vaso-motor disturbances, metabolic processes in the parasites themselves and in the cells of the tissues, and lastly the phenomenon of phagocytosis.

An ingenious explanation as to the means whereby the plasmodium maintains its existence outside of the body and preserves its vitality has been suggested by Manson. In pursuance of his theory he maintains that the organism must enter the human system for one of three reasons, viz., *firstly*, as a necessary stage of its evolution and existence; *secondly*, by accident, or *thirdly*, as finding in the blood a suitable

place to propagate its species, although at the same time it possesses elsewhere in nature other hosts or media. In other words, malarial infection of man may be an example of optional parasitism. The third reason appeals to him as the most satisfactory, inasmuch as in the first place man cannot be essential for the development of the plasmodium, the latter being prevalent in districts rarely or never inhabited by man. Nor is its presence in the body a mere accident, for, reasoning by analogy, from examples of accidental parasitism, we see that here the organism's presence is by no means a rarity; further, it multiplies readily in the body, and from what is known of other hæmocytozoa, such as are found in birds, it would appear that here too a definite system prevails in nature accounting for their presence.

Excluding thus the first two reasons, the third reason alone remains as a possibility, viz., that the plasmodium of malaria inhabits man with design, not only for its own individual interest, but in the interest likewise of the species to which it belongs.

Accepting this hypothesis, then, of what may be called optional invasion, the next question to be considered is: How does the parasite preserve its existence further? How does it exist when outside the body, and how do we account for its apparent latency in patients who for years may be free from the malady, but who when exposed to suitable conditions succumb again to the disease?

To explain this Manson has recourse to a special phenomenon seen sometimes in the blood removed from the body and examined in the usual way, viz., the formation of the flagellate body (i.e., that form of plasmodium characterized by the presence of very long projecting filaments) which he regards as the resting or spore stage of the micro-organism. In other words, just as soon as the mature parasite becomes overpowered and in unsuitable media, these long filaments are found and constitute a condition in which the organisms may maintain their vitality for a long time.

Such a theory, which in its essential features, is somewhat similar to that maintained by Manneberg, and Dock, implies that these flagellate bodies are purely physiological or natural products. Many observers on the other hand, and among them Thayer and Hewetson regard the flagella as probably evidences of degeneration, since they so frequently accompany other undoubted degenerative processes in the plasmodia, and they persist not only after the fever has subsided, but likewise after the administration of quinine. They are further the ready prey of phagocytes.

Granting, however, that the parasites have such a state in which they may exist outside of the body and thus preserve their species,

the question naturally arises as to what means are employed for the exit of the parasite from its host.

While many organisms leave the human body by the secretions (e.g. liver flukes) or by the excretions or by hæmorrhages (e.g. Bilharzia), others again are liberated by the external aid of suctorial insects. A good example is afforded by the filaria nocturna which, like the plasmodium malariæ, is a parasite of the circulating blood. This parasite is carried away from its host in the bodies of mosquitoes. Reasoning by analogy, which, however, is to a large extent purely theoretical, Manson observes that both of these parasites are incapable of leaving the body by other means than that afforded by aid from without such as is supplied by suctorial insects. Both exist in the blood, are enclosed in sheaths, the plasmodium having for its envelope the red cell—both on leaving their sheaths develop normal locomotive power—the flagella of the plasmodium in their great vitality bearing out the analogy to the filaria. The course of the filaria through the mosquito has been fairly fully investigated and a similar process of events is thought to occur in the case of the micro-organisms of malaria. Much of the experimental work along these lines has been performed by Surgeon-Major Ross, whose work and conclusions may be briefly stated as follows :

A malarial patient, in whose blood crescentic organisms were abundant, was made the subject of investigation. He was placed under a mosquito net and the insects, reared up from the eggs, were introduced into the net and having filled themselves with the patient's blood, were collected and examined. Numbers of organisms were found in the mosquitoes' blood, and the progress of events he concludes to be as follows : Crescents are converted into spores after entering the mosquito's stomach, and later, flagellæ are given off, thus forming a stage in which they may remain at rest.

By what means the future infection occurs is still also a matter incapable of proof, though it would seem that one of several means is to be sought for as an explanation. The larvæ of the mosquito with the spores of parasites, or else the mosquitoes themselves lying in the marshes may be ingested by those using the unhealthy water ; or, again, where marshes containing them are gradually dried, the spore forms may be carried as dust and be inspired, and lastly, the mosquitoes may, in the act of suction, reinfect their host.

Whether such a theory is commendable or not may remain questionable for many years to come, though that there are and must be other means of propagation of species than that suggested by Manson must be equally accepted from our present knowlege, or rather ignorance, of the subject. *C. F. Martin.*

Surgery.

Puncture and Incision of the Pericardium.

Delorme et Mignon. "Sur la ponction et l'incision du pericarde." —*Revue de Chirurgie*, Décembre, 1895.

[Commenced in the April Number.]

There are four methods of approaching the pericardium:

1. By trephining the sternum.
2. By passing close beneath the inferior border of the thoracic cage beneath the seventh costal cartilage, starting from the xiphoid appendix.
3. By puncture through an intercostal space.
4. By resecting one or two of the costal cartilages.

Trephining the sternum was advised by Riolan in 1648. The suggestion was accepted by Laennec, Bayer and by Skielderup. It was only done once on the living by Malle. In this way he removed 300 grammes of serous liquid. The relief was instant, but the patient ultimately succumbed to tuberculosis of the intestines and lungs.

Soft and superficial, the sternum is easily trephined. There is no danger of wounding the internal mammary arteries, but there is danger of the bone becoming infected and suppurating, and also danger of the fluid escaping into the cellular tissue of the mediastinum and there setting up inflammatory action. Another danger difficult to avoid is the wounding of the right pleura.

Epigastric incision as a method of approaching the pericardium was suggested to D. Larrey by observing a penetrating wound in a soldier, in which the instrument entered between the xiphoid and seventh costal cartilages passing through the pericardium from below upwards.

The operation is easy of performance, and the left terminal branch of the internal mammary artery can be secured without any special difficulty. But if the abdomen is distended the diaphragm may be pushed up so far as to be in danger of being wounded, and then again there is the danger of wounding the left pleura.

Puncture of the pericardium, since the attempt of Schub in 1840, has been often performed. An ordinary trocar has been used in the majority of cases, sometimes an aspirator needle and sometimes direct puncture with a scalpel.

As to the point of puncture, operators have been guided either by the anatomy of the region or by the clinical signs. The pericardium lies beneath the 2nd, 3rd, 4th and 5th intercostal spaces. It extends a few centimetres to the right of the right border of the sternum, and it has been suggested to puncture it to the right of the sternum.

The internal mammary artery passes 2 or 3 millimetres from the border of the sternum in children and 10 to 15 millimetres in adults. In the fourth interspace there is danger of wounding the heart if the puncture is deep.

Aran, without regard to anatomical points and only bent on avoiding the wounding of the heart, chose the points where silence and absence of bruits were the most complete.

The early operators used a hydrocele trocar, but the needle of an aspirator is now generally used and is to be recommended. After discussing the method of Baizeau and Dieulafoy the authors advise the following:

Along the left border of the sternum, that is, about 15 millimetres from the median line, an incision is made through the skin, beginning a finger's breadth below the lower border of the 7th costal cartilage, passing upwards across the 6th and 5th intercostal spaces. This incision is 4 centimetres in length. In the 6th interspace by preference, if the space will admit the needle, otherwise in the 5th interspace, very exceptionally in the lower internal angle of the 4th interspace, a No. 2 needle of Dieulafoy is slowly inserted in apposition to the left border of the sternum. When the needle has entered to the level of the posterior surface of the sternum, or for a distance of 8 mm, the handle is very much depressed and the point of the needle is carried upwards parallel with the posterior surface of the sternum. When the point of the needle has been forced upwards 1 or 2 centimetres the handle is raised and the point carried forward until fluid appears in the tube. After evacuation the incision is sutured. By this method the internal mammary artery and left pleura are avoided and the risks of wounding the heart are reduced to a minimum.

It is very important that the pleura be not wounded. If the pericardial effusion is serous, probably little harm would result, but if sanguinolent or purulent the result might be disastrous. Even by the method recommended by the authors one is not absolutely certain to avoid the pleura. They found in testing the question that in 32 cadavers, where the puncture was made in the 5th interspace, the pleura was wounded 12 times, and when made in the 6th interspace 6 times. When punctured in the 4th or 3rd interspace the pleura was pierced in nearly every instance. The lung is in less danger as it is generally pushed aside by the effusion. Occasionally the heart has

been wounded, especially when adherent to the anterior wall of the pericardium. This is not necessary fatal if a small needle be used.

Incision of the pericardium is performed after resecting portions of the 5th and 6th intercostal cartilages. The following is recommended and by this method the authors claim that the pleura and internal mammary arteries are not endangered ; the pericardium is opened at a dependent part, and in case of pericardial adhesion, there is no danger of wounding the heart.

1. A vertical incision is carried one centimetre to the left of the left border of the sternum from the inferior border of the 7th costal cartilage to the upper border of the 4th. From the extremities of this incision two transverse incisions, each 2 centimetres long, are carried horizontally to the left.

2. The skin, cellular tissue and the attachments of the pectoralis major are elevated and the cartilages laid bare.

3. The 5th costal cartilage is separated from the border of the sternum and the soft parts detached from the borders and under surface and then forcibly elevated, pressure being made upon it 4 centimetres from the edge of the sternum, so that the cartilage is fractured at this point instead of at its junction with the rib. The 6th cartilage is treated in the same manner.

4. The perichondrium is then incised vertically and removed, when the triangularis sterni is exposed with the internal mammary vessels lying upon it.

5. A director is then passed along the border of the sternum, and with the finger the pleura is separated from the pericardium and pushed to the left with the triangularis sterni muscle and the internal mammary vessels.

6. The opaque white pericardium being now exposed, is pinched up and incised ; a director is inserted into the opening and with a pair of scissors the opening is enlarged.

If found necessary the 4th cartilage can also be removed.

Since the introduction of antiseptic methods, incision of the pericardium is coming more into favour, as in this way one is certain of not wounding the pleura, mammary vessels, lung or heart, and the fluid can be removed with certainty, as well as fibrinous clots, and medicated solutions can be used if thought advisable.

As these patients often take cholorform or ether badly, it is suggested that it is often advisable to puncture or aspirate first, perhaps with the aid of a local anæsthetic, the more complicated operation of incision being reserved until the heart has recovered itself at least partially.

In the recumbent position there is less danger of syncope and the operator can work to greater advantage. *Geo. E. Armstrong.*

(To be continued.)

Pharmacology and Therapeutics.

Alcohol and Alcoholic Drinks.

CHITTENDEN AND MENDEL. "The influence of alcohol and alcoholic drinks upon the chemical processes of digestion."—*American Journal of the Medical Sciences*, January, February, March and April, 1896.

In this paper, which we notice was originally prepared as a report to a Committee of Fifty for the Investigation of the Liquor Problem, the writers give us the results obtained from a long series of experiments made with the view of determining the influence of alcohol and alcoholic drinks upon the action of the several digestive ferments. Such experiments, they admit, afford us only an imperfect view of the influence of alcoholic drinks upon the digestive process as a whole : a process which involves not simply the solvent or digestive action of the several digestive juices, but is dependent in no small degree for its successful working upon the associated processes of secretion, absorption and peristalsis. No single line of experimentation, therefore, can cover the whole field of enquiry. In their present investigation the writers have considered only the influence such drinks exert on the chemical processes of digestion as manifested in an artificial digestion carried on outside of the body.

Alcohol, when present in only small quantities, not exceeding 1–2 per cent. of absolute alcohol, appeared rather to stimulate than to retard gastric digestion. The experiments in which a slight stimulation occurred were too numerous to be the result of mere accident. As the percentage of alcohol is raised, retardation or inhibition becomes noticeable, although generally this result is not very pronounced until the digestive mixture contains 5–10 per cent., or more, of absolute alcohol. With 15–18 per cent. of absolute alcohol (36 per cent. proof spirits) the digestive process may be retarded to the extent of from 25–35 per cent. The results, however, cannot be stated with mathematical exactness, for with a weak gastric juice, or with proteid material difficult of digestion, the retarding action of alcohol is far greater than when the digestive fluid is more active.

So much has been written regarding the contamination of whiskeys and other liquids with fusel oil, that experiments were made to ascertain its effect on gastric digestion. Carefully conducted investigations

showed that all these alcohols, amyl, isobutyl, propyl and methyl, have a similar influence to that of ethyl alcohol, namely, they slightly stimulate the process when present in small quantities, but retard it if the percentage becomes distinctly raised. Considering the small extent to which these alcohols are present in alcoholic drinks, their influence in such an investigation as this may be disregarded.

On the proteolytic action of the pancreatic juice alcohol exerts a more decided effect, the presence of even 2 or 3 per cent. being sufficient to produce a distinct interference with the process; the exact amount of this interference being to a great extent dependent, as in the case of the gastric juice, upon the relative digestive power of the pancreatic fluid. With the digestion of farinaceous foods by the saliva alcohol interferes only very slightly; the presence of even 5 per cent. of absolute alcohol appearing rather to stimulate than to retard the process, while 10 per cent. causes only a slight retardation.

Strong alcoholic beverages, such as whiskey, brandy, rum, and gin, containing ordinarily about 50 per cent. of absolute alcohol, and with only a small amount of solid or extractive matter, have an action upon gastric digestion practically proportional to the quantity of alcohol present. In the healthy individual these liquors can only be considered to impede the gastric digestion of proteid foods when taken immoderately and in intoxicating doses. Nor would it appear that the adulterations of these spirits, as ordinarily met with, affect this action to any extent. The so-called fusel oils in the small quantities present in some of the poorer brands of spirits would not appear to exercise any deleterious influence upon the proteolytic action of the gastric juice.

On pancreatic digestion, however, a given percentage of whiskey has a retarding action distinctly greater than a corresponding percentage of pure alcohol, indicating the presence of an additionol inhibiting substance, which is apparently a part of the solid matter of the whiskey, and is undoubtedly connected with the acidity of the fluid. Brandy and rum have essentially the same action upon pancreatic digestion as whiskey, both retarding proteolysis noticeably, and to a greater extent than does a corresponding amount of pure alcohol.

On salivary digestion these spirits, although showing little retarding influence in quantities less than 5 per cent. of the whole fluid, in large quantities manifest an inhibitory action out of all proportion to the contained alcohol, an action connected mainly with the acidity of the spirit, for on neutralization of the acidity this inhibitory action ceases.

Wines as a class, taken only in small amounts, appear to have no deleterious action upon the chemical process of gastric digestion, and may even increase the rate of action; but in larger quantities they have a distinctly retarding effect, which is dependent more upon the character and amount of the solid matter present than upon the contained alcohol or other volatile material. The following table shows the results obtained in an experiment with different alcoholic liquors in which all the attendant conditions were identical. The proteid used was two grammes of blood fibrin. To this was added 0·016 gm. of pepsin and 0·2 per cent. solution of hydrochloric acid. Digestion was continued for two and a quarter hours at a temperature of 38° to 40° C.:

Fluid Used, 5 per cent. of	Alcoholic Strength.	Undigested Fibrin.	Proteid Digested.	Relative Proteolytic Action.
	per cent.	grms.	per cent.	
.....	.....	0·2013	90·0	100·0
Absolute Alcohol.....	99·5	0·2601	87·0	96·6
Rum.....	51·0	0·2304	88·5	98·3
Whiskey.....	50·5	0.2312	88·5	98·3
Brandy..	47·5	0·2251	88·8	98·7
Sherry.....	21·0	0·3041	84·8	94·2
Hochheimer..	11·0	0·2439	87·9	97·6
Claret.....	10·0	0·2560	87·2	96·8

These results are quite in accord with those obtained by Sir William Roberts, who writes, "It is evident that the retarding effects of sherry and port (with their high percentage of solid matter) considerably exceed what is due to the alcohol they contain. . . . . As used dietetically, sherry must figure as having frequently an important retarding action on peptic digestion. . . . In the common practice of taking two or three wineglasses of sherry with dinner, we see probably a double action, a stimulating action on secretion and peristalsis, and a retarding effect on the chemical process, especially in its earlier stages; in smaller amounts (a wineglassful or so) sherry would act as a pure stimulant to digestion."

On pancreatic, and on salivary digestion, the writers find that wines have a far greater inhibitory action than the stronger alcoholic liquors, an action which is less dependent upon the amount of alcohol which they contain, than upon the presence of solid matters and upon the acidity of the fluid.

Malt liquors in small quantities are without any marked influence on the digestive power of the gastric juice. In larger quantities they cause an inhibition of proteolysis, entirely unconnected with the small amounts of alcohol present, but directly traceable to the comparatively large amount of extractive they contain. This inhibitory action may be compared with the inhibitory action of such beverages as tea and coffee, the retarding action of which is equally pronounced, or even greater, when the latter are consumed in large quantities. It is indeed a property shared by many substances, and does not in itself necessarily constitute an evil of any magnitude unless the retardation is very pronounced and liable to be long continued.

In conclusion the writers desire it to be plainly understood that these results apply solely to the influence of the various liquors studied upon the purely chemical processes of digestion, and do not afford any data for drawing any broad or general conclusions regarding the influence of alcoholic drinks upon digestion or alimentation, since they throw no light upon possible modifications of secretion, absorption or peristalsis. *A. D. Blackader.*

Therapeutic Hints.

Caton. *The Arrest of Rheumatic Endocarditis.*—In a paper read before the last meeting of the British Medical Association the writer urges the importance of a more active treatment of rheumatic endocarditis than is usually employed, with the view of arresting the disease if possible in its initial stages. As soon as any *bruit* is detected, a series of small blisters, each the size of a florin, is applied along the course of the third, fourth, fifth and sixth intercostal nerves in front and at the sides. Only one is applied at a time, and the different exit points are covered consecutively. In this way the blisters give rise to no pain or inconvenience. At the same time sodium or potassium iodide, in eight or ten grain doses, thrice daily, is administered, and the ordinary salicylate treatment is continued. Lastly, the patient is kept in hospital for six weeks, most of the time in bed. Under this treatment most of the writer's cases (29 out of 40) in which symptoms of acute endocarditis had supervened, left the hospital with, as far as could be detected, a perfectly normal heart.—*British Medical Journal*, January 25, 1896.

Bronson. *On the Topical Treatment of Acne.*—In an address delivered before the Society of Alumni of Bellevue Hospital, Dr. Bronson recommends first curetting with a rather large curette with somewhat sharp edges. In using it the skin is put on the stretch, and the curette is swept with rapid free-hand strokes over the affected

surface, with the result of planing off the corneous elevations, and clipping off the tips of many pustules, removing at once the horny cap that seals the orifice of the distended follicles. The second step is to thoroughly remove the contents of the follicles, to accomplish which each follicle must be treated separately, and upon the completeness with which this is effected will depend very largely the success of the treatment. After the mechanical treatment comes disinfection. The skin should be at once bathed with a 1 to 1,000 solution of perchloride of mercury. For home treatment the writer relies almost exclusively on two drugs, sulphur and resorcin. The sulphur is most suitable for cases characterised by marked suppuration. The resorcin appears to be not only an effectual germicide, but to have also some control over the hyperæmia. Sulphur is, therefore, generally more useful in the earlier, resorcin in the later stages. For the employment of sulphur he has found nothing more satisfactory than the so-called *lotio alba*, which consists of a drachm each of potassium sulphide and zinc sulphate, in four ounces of rose water, and the resorcin is used in a three to four per cent. solution in water, or in a weak spirituous solution. These lotions should be applied frequently, from three to five times a day.

While means should be taken to relieve any reflex irritation, the writer thinks it is very certain that there is no specific internal treatment. *A. D. Blackader.*

Pathology.

Upon Contagious Pleuro-Pneumonia of Cattle, Transit Pneumonia and Corn-Stalk Disease.

(Continued.)

In the last number of the JOURNAL I mentioned some of the distinctions between the histological appearances of the pneumonic lung in man and in cattle, and pointed out that the most important difference was the enormous swelling of the lymph channels between the lobules. As Roy has pointed out,[1] in the case of the lungs of most mammals there are present under the pleura lymphatic vessels forming a network, converging superficially to the root of the organ and conveying the lymph from the pleural membrane to the retrobronchial glands. In the bovine lung, vessels of this kind are not found ; the pleural lymphatic vessels behave towards each superficially seated lobule as if it were an independent lung in miniature, and pass over its surface to join the lymphatics leaving its root. Each lobule, thus not only in regard to its blood vessels, but also so far as concerns its lymphatics is anatomically independent. When this is taken into account and when again we remember the large size of these perilobular lymph sinuses, the deviations presented by the bovine pneumonic lung from the pneumonic lungs of other animals become more intelligible.

In order that the contentions between the Canadian and British authorities with regard to the nature of the disease in the suspected lung may be well understood, I may here briefly state what are the characters of the typical lung affected with contagious pleuro-pneumonia, my description being based upon the leading German text book on Comparative Pathology.[2] In the early stage, small, well-defined inflammatory nodes are to be recognised in the otherwise healthy lung tissue. In these the interlobular tissue is hyperæmic, presenting serous infiltration and occasional hæmorrhages. The reddened lobules are surrounded by broad sinuses, 1 to 2 mm. across filled with serous fluid. At the height of the disease the lobular foci of inflammation have given place to an extensive lobar pneumonia affecting, it may be, the whole of the lobe of the lung. As in human

[1] Report on the Pathological Histology of Epizootic Pleuro-Pneumonia. London, British Medical Association, 1879.

[2] Friedberger and Frœhner, Lehrbuch der Speciellen Pathologie, &c. Vol. 1889, p. 590.

lobar pneumonia, the affected region is swollen, very heavy, sinks in water and does not crepitate. Upon section it has a marbled appearance.

The marbling is due to two processes : in the first place to the broad bands of reddish-yellow or greyish-white swollen interstitial connective tissue 2—4 mm. across. The swelling is brought about in part by new connective tissue growth, in part by the modified lymph distending the lymph sinuses. As Professor Welch has pointed out,[1] in acute cases four zones are to be distinguished in these interlobular bands. There is in the middle a network of fibrillated fibrin remarkable for the paucity of leucocytes : at the edge of this is a zone of irregular particles composed of nuclear fragments densely packed together and staining deeply with nuclear dyes ; outside of this is a zone of packed polynuclear leucocytes, and outside again, connective tissue with proliferating fixed cells, and, if the disease is of long duration, a more or less thick band of young granulation tissue. " The impression is irresistible that some deadly cell poison is present in the lymph spaces, that the leucocytes are attracted in masses towards these spaces, but that they are killed as soon as they reach a certain point at the edge of these spaces where they leave behind them fragmented nuclei." In the second place the colour of the enclosed lobules varies ; the oldest have a gray colour (gray hepatisation) the youngest a blood-red, reddish-brown or dark brown colour. It is this combination of broad bands and differently coloured lobules which gives to the lung of contagious pleuro-pneumonia its peculiar and characteristic marbled appearance The blood vessels in the affected region present thrombi with small hæmorrhagic infarcts ; the finer bronchi may contain a fibrinous exudate rich in leucocytes ; the bronchial glands are swollen, the pleura over the affected region becomes implicated, and presents thick irregular masses of fibrin, which in the later stages may be found replaced by organising connective tissue.

These are the main changes in the acute disease. With those seen in the chronic form we have little to do, for as I have said, no case of this condition has ever been found in any lung removed from Canadian cattle.

That other pneumonic affections may occur in the cow's lung goes without saying. Just as in the human lung we may have true acute croupous pneumonia, due to the diplococcus lanceolatus, streptococcus pneumonia (as after diphtheria), pyæmic or tuberculous pneumonia and various other pneumonic disturbances, associated with specific

[1] Papers on the subject of the scheduling of Canada, Ottawa, 1895, p. 42.

diseases or due to inhalation, so in the cow's lung, although as Prof. Welch says, the subject has not received the attention it deserves, there have been recognised forms resembling, yet distinct from, the contagious pneumonia proper. Such forms as are associated with tuberculosis or due to the irritation of small nematode worms (strongylus micrurus) need not be more than mentioned, although the latter at times approaches in appearance singularly near to the true disease—nevertheless the presence of masses of minute worms in the bronchi is sufficient for differential diagnosis. Other foreign bodies in the bronchi may also lead to appearances closely simulating the contagious disease. Thus had not Dr. McEachran cut up one lung (sent to Montreal from the country) in the right plane, we should have missed the large thorn lying in the bronchus and setting up an extensive broncho-pneumonic condition, which, both in variegated colour and thickness of the insterstitial bands, could not be distinguished from the true disease by the naked eye. There has, moreover, been recognised by a large number of authorities a form of croupous pneumonia, sporadic and non-contagious, differing only from the contagious disease in the fact that all the hepatised region presents the same colour and is apparently of the same age—just as in croupous pneumonia in man. A case of this nature will be found described in full by the authorities already mentioned (Friedberger and Froehner).[1] Others like Poels have described a septic pleuro-pneumonia, undistinguishable in appearance from the contagious malady, although presenting a different bacteriology. In 1890 a few animals from a shipload of American cattle landed at La Villette, France, died of pneumonia. They were examined by Nocard and other French veterinarians. From the diseased lung Nocard obtained a microbe allied to the forms causing hæmorrhagic septicæmia in various animals—resembling the microbe of swine plague, hog cholera and chicken cholera. Judged from his description the lungs in these cases were not distinguishable from those of the suspected Canadian animals, and what is more, by inoculation of his microbe he was able to reproduce the disease.

In 1889 F. S. Billings, the head of the Agricultural Experiment Station of Nebraska, from an examination of various organs of animals dying from what is known as the "cornstalk disease," had concluded that this disease was due to a micro-organism of the same nature as that already mentioned, and Nocard therefore concluded that the pneumonia discovered by him was one manifestation of this cornstalk disease (which is unknown in Europe). Hence has arisen

[1] *Loc. cit.*, page 258.

the idea that American and Canadian cattle presenting suspicious lungs are suffering from the said cornstalk disease, an idea which it has been difficult to eradicate, notwithstanding the fact that the disease is an affection from which cattle sometimes suffer after feeding in corn fields late in the fall and early winter, that Canadian cattle are not so fed and that the suspected lungs have been found in the English abattoirs both in the spring and in the summer. Further, it would now seem clear that Dr. Billings was wholly wrong in including the disease among those due to the small microbes of hæmorrhagic septicæmia in animals.

A very careful study of numerous outbreaks by Dr. Veranus A. Moore has failed to discover a specific or even constantly present organism in the diseased animals. Similar negative results have been obtained by Professor Burrill and by Dr. Niles. And lastly in not a single set of lungs of twelve animals examined, in eight different outbreaks, was there a sign of hepatisation. There can, therefore, be no longer any idea that possibly Canadian animals suffer from the curious cornstalk disease.

Now, it is interesting to note that so far as we in Canada have received information concerning the characters presented by the suspected lungs, with one exception, to be referred to later, all of them have been characterised by a condition differing from that which is recognised as being typical of the true contagious disease but resembling that found in the sporadic croupous pneumonia to which I have already referred. While they have presented marked distension of the interlobular lymph sinuses, and the presence of well-defined whitish bands in the diseased areas, the hepatisation has not been variegated, but there has been an even reddish discoloration of all the diseased lung tissue. This has been noticed by the English authorities. Thus in his report upon three condemned cases in May, 1893, Professor Brown, at that time head of the Imperial Veterinary Department, admits that the lobules in the diseased part, instead of varying in colour from light pink to dark red or nearly black were of a uniform vermilion tint. He admits that this appearance distinguishes the lungs in question from those of pleuro-pneumonic cattle in the Old World, but with a charming *naïveté* points out that these peculiarities have "*from the first been recognised as special characteristics of pleuro-pneumonia in animals which have been landed in this country from the United States regularly since 1878,*" (the italics are mine), and he adds: "No satisfactory explanation of the deviations referred to has been offered, but the history of pleuro-pneumonia on the North American continent proves beyond doubt that it is as

contagious and fatal as the pleuro-pneumonia of Europe." It is upon scientific evidence of this nature that the Canadian animals have been scheduled. Professor Brown continues (and here I can confirm what he says, though probably I should use a more correct nomenclature) that "microscopical examination showed the interlobular bands to be composed of extremely fine fibrous tissues, forming a delicate network in which were enclosed cells similar to those found in the air cavities of the lungs." By "fine fibrous tissues," the director of the Veterinary Branch of the Imperial Board of Agriculture evidently means the delicate fibrinous reticulum noticeable in the dilated lymph spaces. This confounding of "fibrous" with "fibrinous" is a mistake that is often made by third year medical students when first they begin their pathological studies. The specimens made by me from these doubtful lungs have shown the lymph channels filled with such a fibrinous reticulum and devoid of the zones of breaking down and polynuclear leucocytes characteristic of the true disease. With one exception, to be presently noted, so far as information has reached us here in Canada, all the suspected lungs of Canadian animals have failed to show true marbling, the appearance of the affected lobules in different parts has been the same, there has been wanting that variation in tint characteristic of the true disease, and if other American cattle whose lungs have been termed pleuro-pneumonic have shown the same peculiarity, the only inference to be drawn is not that they were suffering from contagious pleuro-pneumonia, but that subjected to like influences American and Canadian cattle developed—a form of pneumonia, it is true, but not necessarily of contagious pleuro-pneumonia. The one exception is the lung of a steer which was landed from the steamship "Toronto" in the year 1894, in which apparently there was a close resemblance between the post-mortem appearances and those presented in true pleuro-pneumonia. The experts in London were practically unanimons on this point, and the lung showed the variegated hepatisation characteristic of the true disease. Unfortunately no microscopical examination is recorded of the Toronto lung.

In one other lung of an animal condemned at Antwerp there was similar variation in tint, here associated with necrotic areas—so that the appearance was still more nearly that associated with the true disease. In consequence of this discovery Canadian cattle were scheduled for the time being by the Belgian authorities, who, however, (contrary to the action of the Imperial Veterinary Department) afforded material for examination by Professor Nocard (in Paris) and myself. We arrived independently at the same conclusions,

namely that the pneumonia was associated with the presence of great numbers of a minute bacillus and also of a fungus, our only divergence being that he dwelt especially on the presence of the fungus, I upon the number and localisation of the bacilli. In consequence of our reports the Belgian authorities removed the embargo.

Herein is the weakness of the whole British case. The Veterinary Board at Whitehall declares itself satisfied solely with the naked-eye investigation. No account has been taken of the need that most certainly exists for attempting to study the matter thoroughly. For the continuance of kindly relations between the mother country and the colonies, it has not been thought necessary to take any further trouble. It is known, for example, that inoculation into young cattle with the fluid exuding from a lung affected with the contagious disease induces a somewhat characteristic inflammation at the seat of inoculation; a tumour forms slowly and eventually breaks down, undergoing necrosis. This, it is true, is not an absolutely certain test, but suppose that in any one of the suspicious cases Professor Brown had instructed that half a dozen calves be inoculated; then if only two of the six had presented lesions characteristic of inoculation with material from the undoubted disease his case would have been proved. Compared with the magnitude of the issue, the cost would have been as trifling as the resultant effect upon public opinion would have been great. Again, if employing ordinary bacteriological methods no cultures of bacteria had been found obtainable, then also the presumption would have been strongly in favour of the lungs being affected with the true disease, for as Nocard has pointed out, no growths can be obtained upon ordinary media in connection with the true disease.

But to put it shortly, the Imperial Veterinary authorities demand that Canada be satisfied with the finding of their inspectors. Possibly were these inspectors experts of the highest standing, with acknowledged reputations as pathologists, the position of the British authorities would be tenable; unfortunately, and here I come to the root of the whole matter, neither our colonies nor foreign nations have the slightest belief in the correctness of the decisions of the veterinary staff of the Board of Agriculture. Professor Brown, Mr. Cope and Mr. Duguid may be, nay, are excellent inspectors of the olden type, they are excellent officials for detecting disease by external examination wherever this is possible, excellent officials for seeing that the orders of the Board are carried out, but neither by their training nor by their records will anyone dare to say that they are capable of being the responsible scientific advisers of the British Government. This indeed is proved by their answers at the investigation held by the

late President of the Board of Agriculture, Mr. Herbert Gardner, in 1894, during which Professor Brown brought up as a convincing rebuttal of observations made upon a disease simulating contagious pleuro-pneumonia, that the case described could not be mistaken for the true disease, because the bands of marbling, 5 to 6 mm. across, were after all "mere streaks." A scientific expert ought surely to know that this amount is above and not below the average thickness of the bands seen in contagious pleuro-pneumonia. Again it is curious that Mr. A. C. Cope, who is now the scientific head of the Imperial Veterinary Department, should have to admit that he could not answer fully a simple question on the contagiousness of tuberculosis, and should state "I should not like to speculate too much upon it"—when all pathologists can determine by experiment that the matter has gone beyond the stage of speculation. For him to state that "the present *theory* (the italics are mine) is that it is due to the introduction of the bacillus tuberculosis into the system" displays a want of acquaintance with the present standpoint of pathological knowledge, indeed of every-day knowledge, with regard to tuberculosis, and want of information about the frequently confirmed results of recent investigations that coming from the mouth of one occupying so high a position is peculiar and surprising. With regard to Mr. Duguid, I need only remark that I discovered in 1889 that he had mistaken the bacilli of putrefaction for anthrax bacilli.

These are the "responsible" advisers upon whose decree the President of the Imperial Board of Agriculture declare himself "bound to act," who thus indirectly control the policy of the Cabinet, and upon whose judgment must depend a commerce important to the old country as it is to the Dominion. The spirit in which they perform their functions has been shown by their action in connection with one of the "Lake Winnipeg" cases. Sir Charles Tupper asked that he might be given portions of the suspected lungs for transmission to Canada and examination there. This altogether reasonable request was complied with in the following extraordinary manner: Specimens from a suspected lung were taken along with portions of the lungs of a cow that had been slaughtered in connection with a recent outbreak of the undoubted disease at Hendon—all the pieces were placed together in one bottle with not a single label or other sign to indicate the origin of any one of them, nor would the Veterinary Officers of the Board specify which belonged to the Canadian, which to the Hendon animal. This is the way Professor Brown and his staff saw fit to deal with a matter of international import. Had they been dealing with the local authorities of the hamlet of Peddling-

ton Parva, this piece of jugglery would have been altogether unbecoming and contemptible ; dealing with the High Commissioner of what is nearer to England and yet more worthy of due consideration than even a member of the quadruple alliance the transaction assumes the character of a gross and gratuitous impertinence.

I have already consumed an unreasonable amount of space in discussing this matter and have not nearly touched upon all the points which tend to prove that the Canadian animals condemned in England suffered, not from a contagious pneumonia but from a sporadic non-contagious trouble to which Dr. McEachran has given the satisfactory distinguishing name of "Transit" pneumonia. I have, however, I trust, stated sufficient to render it abundantly clear that the Imperial authorities not only are incapable of determining a matter requiring exact scientific knowledge and training—a matter not to be settled by mere naked eye inspection—but also that they have refrained from making any honest attempt to arrive at the truth or to treat the Canadian contentions with consideration and justice. To enquire why they have pursued this course lies outside the bounds of a pathological retrospect—however obvious the answer may be. But there can be no hesitation in stating here that the treatment accorded to the representations of the Dominion has been utterly reprehensible and as between the mother country and her colony in the highest degree deserving of condemnation. *J. G Adami.*

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL. Such reprints should preferably be addressed to Dr. Kenneth Cameron, 903 Dorchester street, Montreal.]

PERIODICALS.

FEBRUARY, 1896.

THE CANADIAN PRACTITIONER.

Puerperal eclampsia—H. C. Scadding, Toronto, p. 81.

A case of bronchiectasis—F. G. N. Starr, Toronto, p. 87.

A case of epileptic melancholia; foreign bodies in the heart and lung—J. M. Forster, Kingston, p. 91.

THE MARITIME MEDICAL NEWS.

Our profession—Jas. Coleman, Granville Ferry, N.S., p. 42.

Whooping-cough—G. Carleton Jones, Halifax, N. S., p. 59.

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THE CANADIAN PRACTITIONER.

Asthma—H. J. Saunders, Kingston, p. 161.

The surgical treatment of empyema—A. Primrose, Toronto, p. 167.

[CANADA MEDICAL RECORD.]

Resection of the cæcum—J. A. Springle, Montreal, p. 255.

Gold a specific in inebriety—O. C. Edwards Ottawa, p. 257.

Obstetric nursing and the importance of asepsis—James Perrigo, Montreal, p. 259.

THE MARITIME MEDICAL NEWS.

The therapeutics of the circulatory system—M. Chisholm, p. 75.

Cataract operations—E. A. Kirkpatrick, Halifax, p. 85.

LA CLINIQUE.

Du veratrum viride—A. L. de Martigny, Sr., Montreal, p. 318.

QUARTERLY JOURNAL OF MICROSCOPICAL SCIENCE—Vol. 38, Part II., New Series.

Distribution of assimilated iron compounds other than hæmoglobin and hæmatins in animal and vegetable cells—A. B. Macallum, Toronto, p. 175.

REPORTS, BOOKS, ETC.

Consumption, its nature, causes and prevention, with an outline of the principles of treatment, for all classes of readers. By Edward Playter, M.D. Toronto: William Briggs. 1895.

JOHNS HOPKINS HOSPITAL REPORTS—Vol. 5, 1895.

A study of some fatal cases of malaria—L. F. Barker, Toronto.

A Case of Epileptic Melancholia; Foreign Bodies Found in the Heart and Lung---J. M. Forster.

The patient, a woman aged 32, was admitted to the Rockwood Hospital, Kingston, in August, 1889, suffering from insanity due to epilepsy. She was the victim of the most desperate suicidal impulses, and on several occasions almost succeeded in destroying herself, in

spite of the closest watchfulness. In May, 1895, she was trephined and a portion of the convolution, corresponding to the local origin of the convulsions, removed. She made an excellent recovery from the operation and her distressing mental symptoms were greatly relieved. Soon after, however, she developed symptoms of phthisis, which ran a rapid course and terminated fatally in January, 1896.

The interest in the autopsy centred in the heart and left lung. On opening the heart a needle was found embedded in the wall of the left ventricle, close to the interventricular groove. It was one and five-eighths of an inch long and distributed thus: Five-eighths of an inch in the ventricular wall, three eighths in the auricular wall, and five-eighths free in the cavity of the left auriele. It was black in colour and its surface quite smooth. In the inferior lobe of the left lung there was also found a broken knitting needle, four and five-eighths inches long. the broken end being slightly bent and the other end pointed and sharp. The needle had entered the lung at the anterior border of the inferior lobe about two inches from the lower margin, passed downwards, backwards, and slightly outwards, and reached the outer surface of the lung at a point about four inches from its posterior border and two inches from the base. The needle was completely encysted, quite black, but not in any way corroded.

There was no doubt that these foreign bodies had been present for a long time. The patient had shown no symptom of distress from their presence, and she had passed a careful examination of the heart before she had been trephined and had stood that operation well.

Kenneth Cameron.

Distribution of Assimilated Iron Compounds other than Hæmoglobin and Hæmatins in Animal and Vegetable Cells---A. B. Macallum.

Professor Macallum has continued his most valuable and laborious studies upon iron compounds in cells (to which we have already called attention in these pages), and now publishes a further instalment of his results in a paper of close upon 100 pages.

This paper is most exhaustive; 30 pages are given to introductory remarks and a description and critique of the methods of study employed. Following upon this he takes up the distribution of assimilated iron in highly specialised animal and vegetable cells, both in the nucleus and the cell body; and then describes his observations on the occurrence of assimilated iron in special forms of life, more especially in the protozoa, fungi, bacteria and the allied cyanophyceæ. We regret that in the space at our disposal it is not possible for us to

enter at all fully into the many interesting special points brought into prominence by Professor Macallum in his studies. The general results attained by him appear to indicate that a substance in which iron is firmly held is a constant constituent of the nucleus of all nucleated cells, animal and vegetable, and of the cell body of non-nucleated organisms and of organisms possessed of apparently rudimentary nuclei. This iron-containing substance, to which the name chromatin has been given, cannot be regarded as constant in its molecular structure; its most marked characteristic, apart from the iron in the composition, is the occurrence in it of nuclein or nucleinic acid.

The apparently universal occurrence of these iron compounds in living matter renders intelligible the fate of the iron salts absorbed by plants from the soil and seems to indicate the absolute necessity of iron, if even in only minute amounts, in the food of animals, for, in animals, iron is not, as has previously been held, solely of importance in connection with the hæmoglobin of the blood, but is a necessary constituent of each single cell of the body. That there is a relationship between hæmoglobin and chromatin has been pointed out by Macallum, who in one form (Amblystoma) has shown that the former is directly derived from the latter.

From these facts Macallum concludes that anæmia and chlorosis cannot now be referred merely to a diminished production of hæmoglobin, but must be referred to a deficient supply of the primary iron-containing compound, chromatin, in all the cells of the body, and it is suggested that the consequently lessened proliferation of cell and tissue due to this poverty in the essential chromatin brings about that hypoplasia of the vascular system to which Virchow has called attention in chlorotic human subjects.

Professor Macallum's observations upon iron compounds in bacteria and the cyanophyceæ are in accordance with the results obtained by other methods of study, and appear to confirm the belief that in these lower and minute forms of life, the nucleus as such has not become specialised, the chromatin being distributed throughout the cell body.

A Study of Some Fatal Cases of Malaria---L. F. Barker.

Vide Dr. C. F. Martin's retrospect upon malaria in this number.

Consumption, Its Nature, Causes and Prevention, with an Outline of the Principles of Treatment, for All Classes of Readers[1]---Edward Playter.

We congratulate Dr. Playter upon the remarkably interesting form which he has been able to give to his treatment of this subject of consumption. And although we disagree with him in not a few of

[1] Toronto: William Briggs. 1895.

his scientific conclusions, we cannot but think that the very points in which we fail to be in accord with him are actual sources of strength in a book which is primarily intended for the general reader; by which we mean that for the general reader, as distinguished from the reader already versed in a subject, it is ofttimes an advantage to be dogmatic and to write with an air of conviction, and a positive disadvantage to present the subject with both sides of a question fully stated and conclusions drawn with hesitancy. To give one example: Dr. Playter lays down well and positively that there are two essential agents in the development of tuberculosis, namely, the tubercle bacillus and the receptive organism or soil, and he would speak of these as equally important causative factors. Nothing could better impress upon the general reader the extreme importance of a healthy condition of the body as aiding to ward off tuberculosis than this pronouncement on the part of the author; at the same time we cannot but feel that it would be more correct to say that there is one essential factor, namely, the bacillus, and that all others are secondary, for we have example after example, in bacteriological study, of animals immune to small quantities of a virus, being unable to resist the exhibition of larger amounts; provided, that is to say, a microorganism is sufficiently virulent and present in sufficient numbers, however healthy the cells of the body may be, infection must ensue.

Again, the author describes in the most lucid manner the great importance of proper respiration, and almost dogmatically leads the reader to understand that imperfect respiration and a lowered condition of the lung substance, either by improper performance of the act of breathing, or by the inspiration of bad air, is at the bottom of most cases of tuberculosis. He could not better inculcate that most valuable lesson that proper respiration of good air is the best preventive against possible pulmonary tubercular infection. To drive home this lesson he is led to lay down that improper respiration induces an excess of waste matter in the body. "The bacillus," says he, "is a natural organism; the defective breathing and excess of waste in the body constitute an unnatural condition which exists previous to, and seems to be the cause of, the virulent action of the bacillus; if so, this abnormal condition rather than the bacillus is the actual exciting cause of consumption, and in preventive action demands first consideration." To us it seems that, scientifically speaking, it is not possible to make so positive a statement; to mention but one objection, there is that curious fact that has been frequently noted, namely, that in cases of heart disease inducing pulmonary congestion and in which through obstruction to the circulation there must of necessity be that heaping

up of waste matters upon which Dr. Playter lays stress, instead of their being a frequent development of consumption it is relatively unusual to find tuberculosis of the lungs.

Still, as we say, we cannot but hold that these weaknesses, from a scientific standpoint, are a source of strength to a work intended to be read by the general public, and so clear and satisfactory is the general treatment of the subject, so sound the recommendations with regard to prevention and the broad outlines of treatment, that we cordially recommend our readers to place the book in the hands of intelligent laymen to whom they hold it would be beneficial to have a clear knowledge concerning the nature, causes and prevention of this sadly widespread disease. *A.*

Reviews and Notices of Books.

A Text-Book upon the Pathogenic Bacteria. By Joseph McFarland, M.D., Lecturer on Bacteriology in the Medical Department of the University of Pennsylvania. With 113 illustrations. Philadelphia: W. B. Saunders. 1896.

Dr. McFarland has succeeded in writing an interesting and very fairly satisfactory text-book upon pathogenic bacteriology, and almost disarms criticism by the modesty of his acknowledgement in the preface that in writing this work the standard text-books have been drawn upon. There is no pretence, therefore, that the work has been written with personal authority; the author would appear solely to have attempted to put clearly before his readers the main results that have been gained by various workers. And in this he has succeeded. There are one or two obvious slips; for example on page 235, beneath an admirable reproduction of one of Fraenkel and Pfeiffer's photographs of the tetanus bacillus, showing perfectly the terminal spores, we note that it is stated that the bacilli are not sporiferous; presumably, not aërobic, is what ought to have been printed. So again the 9th line on p. 66 contains an evident transposition of words and idea. And some of the proper names throughout the volume are incorrectly given. In general, however, the arrangement and the printing are excellent. Certainly there has been no text-book yet published in any country in which the illustrations are so uniformly excellent.

The Journal of Experimental Medicine, edited by Professor William H. Welch, published by D. Appleton & Co., New York.

We would again call attention to this new journal, which, judging from the influential body of supporters, from the contents of the first number, and last and not least from the great reputation of the editor, is assured of being the leading organ upon this continent for the publication of original research in all branches of medicine. The first number is in every respect admirable, not only as regards the high quality of its contents, but also in appearance and illustrations. So earnest an endeavour to provide for America a journal of the highest class, which shall more than compare with the best in the Old World, deserves general support. Subscriptions ($5.00 per annual volume) may be sent to the publishers, or to Mr. N. Murray, Johns Hopkins University, Baltimore.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Stated Meeting, March 6th, 1896.

A. D. Blackader, M.D., President, in the Chair.

Notes on the Treatment of Diphtheria by Antitoxin.

Dr. A. T. Bazin read a paper under this title. (See page 741 of the April number.)

Discussion.

Dr. J. A. Springle said that in his experience there seemed to be no question that we had in antitoxin a specific remedy for diphtheria. In comparing the present treatment with that formerly in vogue, namely, by local applications and tonics administered internally, we now find in this new remedy a substance preventing a growth of diphtheria upon the body as a medium. The resistance offered by children and their terror the various local applications were used could not but help causing ill effects, especially in severe and advanced cases. Tracheotomy hitherto was a *dernier ressort*, and the speaker had been singularly unfortunate in his operations. The disease is now shortened to a few days instead of many, and the sequelæ, such as paralysis, nephritis, etc., are now rare. As regards obtaining a bacteriological confirmation in suspected cases, it is advisable to inject first and get the report afterwards, for it is very doubtful if any ill results follow the use of the serum, beyond those cutaneous affections already spoken of.

It is especially advisable to inject from the first and immunise those who may have come in contact with the disease. It is not rational to reserve this treatment for bad cases only, as has been done, for the full measure of success by its use is only to be obtained when the disease is ousted early and before its toxins have affected the system generally. Probably tracheotomy and intubation will become still more a temporary procedure; not only that, but it may be feasible in tracheal diphtheria to curette or remove the membrane so that time might be gained until the serum has acted.

Possibly a rubber tube introduced either through the mouth or trachea beyond the obstruction might gain necessary time. The speaker had used the serum of Roux and Schering and found that

the shedding of the membrane generally commenced in nine to fifteen hours, glandular enlargement subsiding rapidly. He was unable to express any opinion of the effect upon the temperature, beyond that it was variable. Erythema and urticaria were seen frequently, but abscess, nephritis and paralysis had not been found in any of his cases.

A flexible rubber attachment between the syringe and the needle lessened the danger of breaking the latter in children. The use of an antiseptic spray to the air passages should always be continued, peroxide of hydrogen giving him the best results. Hospitals, as a rule, received the worst or neglected cases, and consequently would show less favourable results. In cases in which scarlatina and diphtheria existed together it would be interesting to ascertain the effect of the antitoxin upon the former. He considered that the injection, when made into the subcutaneous tissues, caused less after discomfort than when introduced into the muscles.

Dr. D. F. Gurd had used the antitoxin eleven times, always subcutaneously, making the injection in the back. Every case had recovered. The majority of the cases had been verified by bacteriological examination. No case had been followed by paresis. Two very young children with laryngeal stenosis were out of danger in twenty-four hours.

Dr. H. A. Lafleur drew attention to the fact that herpetic angina might cause difficulty in the diagnosis of diphtheria, inasmuch as the vesicles, after the scabs had fallen off, left small shallow ulcers covered with a greyish membrane. These vesicles, if close together, tended to coalesce and invaded the same parts as diphtheria, namely, the pillars of the fauces, uvula and tonsils.

He could not go as far as Dr. Birkett in believing all cases of membranous croup to be diphtheria, but thought that 5 to 10 per cent. were due, not to the Klebs-Lœffler bacillus, but to a streptococcus. Membranous rhinitis was often present for weeks without producing constitutional symptoms in cases in which the Klebs-Lœffler bacillus could be found, and which could transmit virulent diphtheria to other individuals. Antitoxin acted on the system by neutralising the poisonous secretions of the bacilli, as the latter were often present in the throat in a virulent condition long after the membrane had disappeared.

Dr. Robert Wilson asked Dr. Bazin what his experience had been with the antitoxin in cases of mixed infection, and if he ever made use of any local treatment.

Dr. F. J. Shepherd asked for what length of time the bacillus of diphtheria could be found in the throat after an attack. He had

seen a German authority quoted as saying that it might be for a year, and he would like to know whether the antitoxin shortened the period of the presence of the bacilli. He did not think that tracheotomy was always followed by such fatal results as stated by Dr. Springle. He had himself had a continuous series of five or six successful cases some years ago, when tracheotomy was more often performed than at present.

Dr. G. Gordon Campbell, referring to the zone of hyperæmia described by Dr. Birkett as characteristic of diphtheritic membrane, related a case in which this appearance had been particularly remarked at the time, yet both the bacteriological examination and the subsequent history had proved it to be due to a staphylococcus and not the Klebs-Loeffler bacillus. With regard to the site of injection he preferred the infra-clavicular region, as the soreness following injections made in the back sometimes prevented patients from resting comfortably in bed. Local treatment, except a simple antiseptic gargle, was unnecessary. The erythematous blush described he had not seen in ten cases in which he had used antitoxin, but from the description it was probably very similar to the slight erythema so often met with about the shoulders and neck at the commencement of ether anæsthesia.

Dr. D. J. Evans referred to two cases of membranous rhinitis which had come under his notice. The first was a child aged six years, in whom he saw the membrane in the nose, but as there was no bleeding, the temperature normal and the pulse good, he reserved his diagnosis. Forty-eight hours later there was evidence of pharyngeal diphtheria, and the child died subsequently from it. In the other case, a child aged six, a culture was made from the nose, and a guinea pig inoculated from it died. Later a brother and sister developed distinct attacks of diphtheria.

Dr. F. R. England had treated twelve or fourteen cases with wonderfully favourable results. The question of immunising was of great interest. He had recently injected 6 cc. of Roux's serum into four cases that had been exposed to the infection, three of whom, however, had developed diphtheria, which had a very brief course. He had on one occasion to perform intubation in a case of laryngeal obstruction, and at the same time injected the antitoxin. Complete relief followed the introduction of the tube, and in twelve hours the child was sitting up and playing in his bed. Suddenly the membrane separated, the tube became obstructed, and before assistance could be obtained the child had choked to death. He therefore strongly advised that the tube should have a string attached to it, and that the parent should be instructed how to remove it if necessary.

Dr. F. G. Finley drew attention to the fact that there was a form of membranous sore throat due to streptococcus infection and that epidemics were occasionally due to it. In the earlier investigations made by Delafield, he had not been able to find the Klebs-Lœffler bacillus, and had concluded that diphtheria was not caused by it. No doubt his work had all been done on cases of streptococcus disease.

Dr. Finley related a case in which a distinct membrane on the back of the pharynx had been shown to be due to diplococci.

Dr. H. D. Hamilton referred to several peculiar cases of diphtheria which had come under his observation, one in which no Klebs-Lœffler bacillus had been found, while the membrane was present and the child in the hospital, but two or three days after coming out, although antitoxin had been used, the bacillus had been found. In another case, where there was only a superficial stomatitis, he found the Klebs-Lœffler bacillus present. In a third instance, several virulent cases of diphtheria in a house had been directly traced to a membranous rhinitis in a servant girl in the family. On investigation it was found that for two weeks previously the girl had been bleeding from the nose and coughing up membrane without being ill enough to be confined to her bed. A child had died of so-called pneumonia (in spite of intubation) the day before the speaker had been called. On examining the surviving three children and the servant, two children presented typical nasal diphtheria and the servant nasal and pharyngeal (Klebs-Lœffler bacillus present) which had been overlooked for fully ten days. A prophylactic case remained well in this household. Antitoxin, with peroxide of hydrogen, had given great improvement in results, and he mentioned having used the antitoxin (Schering's) on 13 cases without observing a rash ; one pharyngeal case had severe pains in the abdomen and extremities for twelve hours following a single injection ; one a laryngeal case showed signs of collapse after a treble dose, but soon rallied. Of these 13 cases 7 were pharyngeal, 3 were laryngeal, 3 were nasal, and one of these was faucial as well. Two of the thirteen died ; one being mixed with scarlet fever, passed on to gangrene of the neck ; the other died from the intubation tube being coughed out and its not being possible to replace it in time. An injection of 3 ccm. in a seven month infant was successful as a prophylactic.

Dr. J. B. McConnell considered it most important that the treatment should be begun early before the parts had become infected with staphylococci and streptococci. He had had very good results from the local treatment before the antitoxin had been introduced, but he considered that to be successful, the application had to be con-

stantly and persistently made, at least every fifteen minutes during the first twenty-four hours. He could not agree with Dr. Lafleur that the antitoxin had no local action upon the bacilli: it not only counteracted the toxin, but inhibited the growth of the bacillus. He had recently had a case so mild that he did not think that it would be necessary to use the antitoxin, but, all the same, had administered it. Next day the child appeared perfectly well, but on the fifth day developed rapid heart-failure and died. He felt inclined to believe that this fatal result was largely due to the antitoxin.

Dr. J. R. SPIER thought that, in diagnosis, too much stress could not be laid upon the general appearance—the great prostration with paleness and puffiness of the face and neck, even when the glands were not involved, and the odour of the breath, were distinctive. The two most difficult problems in diagnosis, which he had seen, were from syphilitic membrane on the back of the throat and a case of thrush occurring on the tonsils and pharynx. With regard to treatment, he thought where there was no involvement of the larynx the old treatment was very successful, iron, strychnine and glycerine, and local applications of some cleansing solution, (50 per cent. of hydrogen peroxide in water). Antitoxin, Dr. Spier said, when it first came out had often cured the disease and killed the patient. It had given rise to a good many complications, and once or twice had been to blame for severe albuminuria. Since then, however, he had very good results from it.

Dr. W. F. HAMILTON had seen a case in Prof. Ganghofner's clinic in Prague in which a very typical scarlatiniform rash followed the use of the antitoxin. The similarity in this was very striking. The Professor pointed out that in such cases the whole surface of the body was usually involved, while early in scarlet fever the chin is generally free of rash, presenting a marked contrast to other portions of the face and body.

The PRESIDENT drew attention to a point in the treatment which had not been sufficiently emphasized, namely, the irritating properties of hydrogen peroxdide in cases in which the tissues were weakened. In these cases the normal saline or weak perchloride solution had been found more successful. If local applications were used at all during the antitoxin treatment, they should be as bland as possible.

Dr. A. T. BAZIN, in reply, said that cultures had been made from the throat in every case of the hundred and four, and in nine the Klebs-Loeffler bacillus was not found; of these two were croupy, and in one it seemed as if the bacteriological diagnosis were at fault, as the bacilli were found in two sisters of the patient who were suffering

from pharyngeal diphtheria. In the other croupy case, a tracheotomy, nothing but cocci were obtained. In another case, clinically typical diphtheria, the membrane gave pure cultures of streptococci.

In all cases, repeated cultures were made and the patient was not discharged till the bacilli were absent. As a rule the bacilli were present for a full week after the disappearance of the membrane. Some recent German statistics on the point state that in 50 per cent. they were present for one week, in 25 per cent. for two weeks, and in the other 25 per cent. for from three weeks to nine months.

With regard to the use of antitoxin in immunising, Dr. Bazin's experience had naturally been small. He had used it for this purpose three times, in all with good results. Two of these were adults, nurses in the diphtheria wards, the third being a child of four months whose mother was admitted with diphtheria. The child showed no constitutional disturbance, no temperature, but subsequent examination of the throat gave a culture of B. diphtheriæ, although no membrane was present.

With regard to local treatment, it was entirely rational as preventing septic poisoning, over which the antitoxin had no control When there was glandular enlargement, as was invariably seen in severe nasal cases, cold compresses were employed as well.

Of scarlatina and diphtheria together Dr. Bazin had had two cases, both of them croupy. In one, thirteen months of age, the throat cleared and the labour of respiration disappeared, but the child died on the eleventh day. The other, seven years of age, died in two days after admission, having a temperature of 105°, which was unaffected by the antitoxin.

He considered constitutional treatment other than antitoxin unnecessary, except to relieve special symptoms. He gave no iron, no strychnine, as routine. If anæmia followed he gave iron, but while giving tinct. ferri perchlor. as a routine the frequency of albuminuria was greater.

Stated Meeting, March 20th, 1896.

A. D. Blackader, M.D., President, in the Chair.

Plasmodium Malariæ.

Dr. F. G. Finley demonstrated specimens of the malaria plasmodium taken from a patient suffering from tertian ague, acquired six months previously in Massachusetts.

The plasmodium is now universally recognized as the etiological factor of the disease in Europe and America, although a number of

Indian medical men still denied its presence altogether, or regarded it as being of accidental occurrence.

All Western observers, however, agree in regarding the parasite as being constantly present in malaria and in no other disease. Unfortunately the organism has not yet been obtained in pure culture outside the human body, but inoculations of blood from malarial patients into man have produced the disease in a number of instances, the incubation period being usually eleven or twelve days.

In making observations on malarial blood, strict attention to technique is necessary. Cover glasses and slide must be carefully cleansed in alcohol and ether. A small drop of blood is taken from a finger which has been washed with alcohol, the cover glass brought in contact with it, and the cover laid on the slide so that the drop spreads out in an even and thin layer. The preparation, if successful, should show neither rouleaux nor crenated corpuscles. The plasmodium is picked out readily by the minute specks of pigment in the blood corpuscle, when examination with $\frac{1}{12}$ immersion lens shows the rapidly moving amœboid body within the corpuscle and the pigment at its periphery. Different forms, representing some of the phases of development and their relation to the stages of the paroxysm, were shown, and described.

Dr. J. G. Adami called attention to the rather curious fact that in the East, where malaria is so prevalent, instead of the tendency being to confirm the observations of Laveran and of the Italian and American observers, the opposite appeared to be the case, and there was showing itself a remarkable amount of scepticism on the part of some of the leading medical men in India, Hong Kong, &c. Probably in these regions the very frequency of malaria complicating other conditions was the main cause of the doubt that was beginning to find definite expression.

Dr. H. A. Lafleur did not think that any observations made in the East at all weakened the evidence that the plasmodium malariæ was the cause of malaria. If there was one disease in which observation was conclusive, it was malaria. To claim that the parasite was present in patients suffering from diseases other than malaria, was begging the question. The consensus of opinion now was, that when the parasite was present, one was dealing with malarial infection no matter how atypical the symptoms might be. This was particularly the case in chronic forms with symptoms of anæmia and splenic enlargement, in which, by repeated examination, crescentic bodies could be demonstrated. The history of the discoveries made in malaria illustrated the point that a disease is often best studied where it is not very prevalent.

Dr. T. D. Reed had had an opportunity, while in Baltimore recently, of seeing a brilliant diagnosis by Dr. Osler. Observation of a slide was made, happily, just at a time to find the peculiar appearance of the organism which precedes a chill. The patient had a chill just as predicted.

Primary Cancer of the Vagina.

Dr. F. A. L. Lockhart exhibited the specimen and related the history of the case, which will be published later.

Gangrene of the Lung with Multiple Hepatic Abscesses.

Dr. J. G. Adami exhibited specimens from a case, a report of which will be published later.

Dr. C. F. Martin referred to the point that in abscesses of the liver caused by the amœba of dysentery, the products of purulent inflammation, were generally absent. One did not get pus cells, but necrotic material. In two cases of abscess of the liver, which he had recently examined, he had searched in vain for the amœba of dysentery. The contents, however, had also shown a similar necrotic material, and yet cultures had not shown the presence of bacteria. The question was thus raised whether, in an abscess of the liver, the leucocytes were especially apt to be broken down and nothing but detritus to be found. Possibly the structure and nature of the liver tissue would account for this tendency to the necrosing of cells.

Dr. H. A. Lafleur had seen a similar case in Baltimore, which had been looked upon clinically as one of pulmonary tuberculosis, although the examination of the sputum failed to show the bacilli. At the autopsy there were found patches of interstitial pneumonia with several necrotic areas, which were looked upon by Dr. Welch as due to pressure of the sclerosed tissue cutting off the circulation. He (Dr. Lafleur) once, while examining a horse, had met with a condition exactly similar to Dr. Adami's specimen, and had thought that it was tuberculosis until the veterinary clinician explained that that disease was very rare in the horse.

Thyroid Feeding in the Treatment of Insanity.

Dr. T. J. W. Burgess read a paper on this subject. (See page 482.)

Dr. Wesley Mills was surprised that there had not been more applications of this remedy reported before the Society. He referred to a dog, shown by him three months before, from which he had removed one-half of the thyroid gland. After the animal had thoroughly recovered from the operation, he had removed the other half, when the dog had presented the same symptoms as after the first operation. He had, the day before, commenced feeding the dog (as

well as an intact dog, as a control experiment) with thyroid extract. Within two weeks he had commenced to emaciate, etc., but finally developed tetanic spasms and died in a fit, just two months after the operation, while the usual time was less than two weeks. The feeding with the extract was continuous and the dose varied from one to three (mostly two) of Armour's five grain tablets daily.

Dr. W. S. Morrow, referring to the marked effect of thyroid feeding in cases of Cretinism, related the following case : On February 27th he was called to see a baby five months old and found its tongue greatly swollen and almost filling its mouth. The large size of the tongue had been noticed immediately after birth. He put the case upon $\frac{1}{4}$ grain doses of Armour's dessicated thyroid, and in a few days there was marked improvement in the prominent symptoms, which had been dyspnœa and constipation. After three weeks treatment the tongue was now almost down to the normal size. Enquiry as to the occurrence of goitre within the family of either of the parents had led to negative results, and the only fact he thought likely to be of interest was that they were both natives of Glengarry where goitre was fairly common.

Dr. W. E. Deeks referred to a case which he had reported a year previously of what he supposed to be ichthyosis simplex, and he had administered desiccated thyroids in five grain doses, and very soon the case was completely cured. Since then another marked case had been treated, but so far without benefit.

Dr. J. G. Adami referring to the tremor that had been observed in overfeeding with thyroid extract, pointed out that a similar tremor had been noted in the lower animals in the very opposite condition, namely, after removal of the thyroid gland ; and asked Dr. Wesley Mills whether he had, in the animals experimented upon by him, been able to distinguish between the two tremors.

Stated Meeting, April 3rd, 1896.

A. D. Blackader, M.D., President, in the Chair.

Angioma of the Skull.

Dr. G. E. Armstrong showed a patient on whom he had operated for this condition, a report of which will be published later.

Dr. James Bell stated that the patient had been under his care in the Royal Victoria Hospital about Christmas time. The case had puzzled him very much, but he had arrived at a conclusion different to that of Dr. Armstrong. The question, to his mind, had been

whether the growth was an angioma or angio-sarcoma. He had been under the impression that the growth had commenced either inside the skull or between the tables. Had it been an angioma originating within the skull, it was strange that such a growth had not produced brain compression instead of growing outwards, nor could he explain how it had eroded the skull in irregular lines and set free floating islands of cranial bones. The man had stated that all his life he had been subject to epistaxis until the tumour appeared, when it had ceased. Following this line of reasoning he had come to the conclusion that it had originally been an angioma, but that the indications had pointed to sarcomatous development. He, therefore, had considered that it was an angio-sarcoma, commencing probably in the diploë. He had punctured the tumour, and had obtained fluid, which proved to be pure blood.

The only case which Dr. Bell knew of, which at all corresponded to this, was one described by Müller, and noted in Bland Sutton's work on pathology. The man died and the tumour proved to be a plexiform angioma, but it had commenced externally, although it appeared to have eroded the cranial bones.

In answer to Dr. Adami, Dr. Bell said he had seen several plexiform angiomata on the exterior of the skull.

Dr. J. G. Adami pointed out that small nævi were occasionally to be found in connection with the vault of the skull. During the last year, in performing autopsies at the Royal Victoria Hospital, he had come across two examples of the condition ; in each case, upon baring the cranium, he had noticed small dark areas close to the longitudinal sinus, of roughly spherical shape, and in one case actually rising slightly above the general level of the bone. These were situated close to the longitudinal sinus, but upon examination were found to be, not as might be expected, pacchionian bodies, but were distinctly of nævoid character. Possibly Dr. Armstrong's case was a development of such nævoid conditions, starting in the diploë

Dissecting Aneurism.

Dr. J. G. Adami showed a specimen of this case, a report of which will be published next month.

A Years Experience in the Bacteriological Diagnosis of Diphtheria.

Dr. Wyatt Johnson read a paper on this subject, which will be published next month.

Dr. F. W. Campbell thought that the profession in this city owed a great debt of gratitude to Dr. Johnston, for the way in which he

had carried on the work. The question of not waiting until the diagnosis was confirmed was very important. In his opinion, it was wise to use the antitoxin at once, in cases where there was the least suspicion of diphtheria.

Dr. J. G. ADAMI asked whether a note of the day of the disease on which the culture had been taken, in cases of mixed infection, had been made. This he thought would greatly influence the statistics, for there would be a great difference in the relative number of streptococci present. In these cases of streptococcus diphtheria, he thought that the patients should be isolated as well as in true diphtheria.

Dr. J. B. MCCONNELL asked if the Klebs-Loeffler bacilli, which were found in the throat a number of days after the attack, were as virulent as those present when the diphtherial attack was in active progress, and if so, how could they remain in the throat without developing the disease. Ruffer considered that antitoxin had a bactericidal action on diphtheria bacilli, and Dr. McConnell thought there must be some such action as this which prevented growth and reinfection, in addition to its toxine destroying powers.

The PRESIDENT, referring to Dr. Johnston's suggestion of using an organic acid for the destruction of bacilli, said that Dr. F. Gordon Morrill, of Boston, at the last meeting of the American Pædiatric Society, reported good results from the use of strained lemon juice sprayed into the nose and throat six times a day. He said that cases in which the bacilli persisted, notwithstanding the use of hydrogen peroxide, yielded promptly to this treatment.

Dr. JOHNSTON, in reply, stated that the cases were primary and the cultures were the first taken in each case, but there was no uniformity about the date. In subsequent cultures he had found a steady decrease in the number of the bacilli and an increase of the micrococci. Bacilli from the throats of convalescents are often extremely virulent. Dr. Park, of New York, had obtained the most virulent bacilli he had ever met with, from a mild convalescent case. The antitoxin did not seem to affect the virulence of the bacilli.

Some Interesting Cerebral Conditions.

Dr. C. F. MARTIN showed two specimens of diseased brains.

I. Porencephalus. He said: the first specimen here shown represents a lesion not infrequently found in the brains of infants. There is a large cavity in the cortex of the right cerebral hemisphere immediately beneath the pia mater which completely closes off the cavity above. The specimen was removed from the skull of a female infant thirty days old, who had been admitted some months ago to the Foundling

Hospital, under the care of Dr. Kenneth Cameron. The birth had been an easy one and during the first ten days of her life the child had presented no evidence of disease. Then for the next five days diarrhœa supervened with slight elevation of temperature, up to a maximum 101½°; she seemed quite well for the ensuing week. On the twenty-second day the temperature suddenly rose and assumed an irregularly intermittent febrile character, ranging between 97° and 107°, while diarrhœa supervened from time to time. The cold bath treatment was adopted and the usual internal medication, but without avail, the child dying seven days after the onset of the fever.

No hemiplegia had been observed, nor was the condition accounted for apart from the intestinal symptoms present.

The autopsy revealed mainly two conditions, one a very moderate catarrhal colitis, the other, the cerebral cyst here shown.

The right hemisphere, as is seen, contains a large cavity situated immediately beneath the pia and measuring in greatest diameter 6½ cm. It has not extended as far as the lateral ventricle, but involves the main portion of the motor area on the right side. It contained at the autopsy a very little fluid, and the overlying pia was partly collapsed into folds upon it. Its walls were of a pale greyish-white colour, with no sign of rusty pigmentation, and it was lined by very shreddy material, presenting fine irregular filaments throughout.

The skull itself was mesocephalic and rather thinner than normal.

The condition is of clinical interest, inasmuch as death had been preceded by some days of pyrexia and other evidence of constitutional disturbance, so that it would suggest that the cerebral condition was the exciting cause of the symptoms. Granting this to be true, it would give evidence of a most rapid destruction of cerebral substance, and it is, I believe, generally recognized that in infants the brain tissue may be lost in an astonishingly rapid manner, while in adults the process is much more slow. It would here, however, be impossible to state that the condition had only commenced since birth.

The etiology of the condition is obscure and it has been attributed to a variety of processes, such as various obstructive and destructive lesions in vessels, to arrested development, general encephalitis, etc., but it would seem that some of these different conditions may each alone induce the formation of a porencephalus.

It is a common cause of infantile hemiplegia, and Osler has gathered

together 24 cases out of records on 90 autopsies performed upon infants with paralysis.

II. Pyocephalus. The second specimen was that of a pyocephalus, i.e., the presence of pus in the greatly distended ventricles of the brain. It is interesting chiefly because of the extent of the suppuration and the fact that no originating cause could be detected.

The brain was removed at the autopsy on a male infant, thirty-three days old. No special history accompanied the case, but the charts give evidence of very irregular pyrexia—averaging perhaps 101°—the maximum (105°) being attained three days before death. The stools were constantly loose and of a green or greenish-yellow colour and vomiting came on from time to time. It is further said that a kind of opisthotonos was present during the last three or four days of the infant's illness, while the lower extremities were especially noted to be stiff. At the autopsy, in addition to some redness of the gastro-intestinal tract, there was found no sign of disease in the abdominal or thoracic viscera. The brain, as seen in the specimen, was extremely soft, much enlarged in size, and on horizontal section, (according to the French method of examining the brain) the ventricles were found very much distended with pale greenish pus which had a sweet odour. The walls of the ventricles were ragged and showed considerable destruction of adjacent cerebral substance, though there was no evidence anywhere of communication with external structures.

An examination of the body elsewhere, the joints, the naso-pharynx, auditory canal, for caries, trauma, etc., failed to reveal any evidence of disease, while there was no sign in the lungs of gangrene, nor in other parts of the body of foci of suppuration.

The cause must remain here undiscovered, as it is in not a few similar cases.

Cover slip preparations of the pus revealed a diplococcus of no special characters, and cultures taken from the pus were unsatisfactory in view of the method by which the brain was opened.

Hydatidiform Mole.

Dr. C. F. Martin presented for Dr. A. E. Vipond a specimen of hydatidiform mole which had been obtained in the latter's practice. The patient had been in the fifth month of pregnancy, when serious and even alarming flooding supervened. Examination showed a dilated os upon which lay a soft friable mass, which bled easily. Pieces, which were easily removed, showed the condition to be a hydatidiform mole, and by firm pressure, it was nearly all removed.

Ergot and hot douches had arrested the hæmorrhage, while during the next twenty-four hours the remaining portion came away of itself and the patient made a good recovery.

Cancer of the Rectum.

Dr. Wyatt Johnston exhibited for Dr. Armstrong a specimen of cancer of the rectum of the adenoid type. The disease had involved the whole circumference of the gut for between two and three inches above the anus.

He also showed for Dr. Armstrong an adenoid cancer of the sigmoid flexure, which showed great constriction at the point of disease and great dilatation above.

Dr. G. E. Armstrong read the history of the first case (reported by Dr. Kinghorn) as follows :

Wm. M., aged 58, was admitted on February 25, 1896, to the Montreal General Hospital complaining of passing blood *per rectum*. The trouble was first noticed ten months previous to admission, and up to that time he had had no trouble of any kind about the anus.

The onset was gradual and the first symptom noticed was irregularity of the bowels. Previous to this time the bowels had been very regular, but it gradually came about that they moved only every third day. The stools were fairly formed, but rather contracted and of a pale colour. Some months later he noticed the bed-clothes soiled in the morning with a blood-coloured fluid, having a peculiar, rather sweetish, offensive odour. This fluid came to be passed both day and night and increased in amount. Pain was first noticed about four months after the onset of symptoms and was felt at the bottom of the spine and at the anus.

Five months after onset he had great frequency of micturition during the night, but had to wait sometimes fifteen minutes before the stream would come away. This condition lasted until six weeks previous to admission.

About six months after the onset he had an attack of diarrhœa, which lasted one week, but otherwise the bowels gradually became more constipated, and finally would not move without a purgative.

While the above symptoms were developing he lost about ten pounds in weight, and though his appetite continued good he became pale and lost strength.

He was born in England and when younger was ten years in the British Army, in an infantry regiment. Of late he has worked at dry goods packing. His occupations have always kept him on his

feet. His health has always been good and there is no history of disease either in childhood or adult life. He has always been a heavy smoker and up to the present year has used alcohol very freely. Other than a bubo thirty years ago he has had no venereal diseases. There was no history of hæmorrhoids or other trouble about the rectum.

The family history as regards malignant disease was quite negative.

On admission his appearance was that of a well-nourished man of 58 years. The face had a pale and rather cachectic look. When in bed he had to lie on either side, not in the dorsal position, as this position caused him pain in the rectum and over the coccyx.

Examination showed a few external hæmorrhoidal tags. The entrance of the finger into the rectum caused a rather profuse hæmorrhage, accompanied with a blood-tinged serous liquid. There were felt masses of tissue which were soft, friable and bled readily and entirely surrounded the lumen of the bowel, and at the site of the prostate the lumen of the bowel was almost occluded. The finger could just reach above the growth.

The respiratory, vascular, digestive and urinary systems were normal.

On March 5th he was given ether and an inguinal colotomy performed after Maydl's method. The rectum was daily irrigated with boracic acid solution and the bowel opened by a cautery on the third day. Three weeks later the bowel was divided completely across with the thermo-cautery.

Pathological Report by Dr. Wyatt Johnston.—The bowel presents very large ragged ulcerations with raised edges and infiltrated base involving the entire circumference of the gut for the extent of about three inches. Microscopic examination shows the growth to be adenoid carcinoma, with secondary involvement of glands, some of which are situated on the limits of the incision.

Dr. Armstrong added that he had removed the growth by Heinecke's method.—The patient was first placed in the lithotomy position and a curved incision made in front of the anus, and while an assistant held a sound in the urethra the rectum was carefully separated from the urethra, prostate, and vesiculæ seminales. The patient then being turned on his side, the soft parts and sacrum and coccyx were divided longitudinally up to the lower border of the third sacral foramen. The sacrum was then chiselled across and the osteo-plastic flaps turned out. The rectum was then brought well down, the peritoneal cavity deliberately opened, and the bowel and meso-rectum divided

well above the limits of the disease, the peritoneal cavity being closed by suturing the peritoneum to the anterior wall of the rectum. The osteo-plastic flaps were then replaced and the end of the bowel brought out for drainage. This method gives good access, permits the perfect control of hæmorrhage, and interferes very little with blood or nerve supply. The patient is making a very satisfactory recovery.

Aortic Aneurism.

Dr. A. E. Orr exhibited the specimen and read a report of the case, which will be published later.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

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THE NEW PHOTOGRAPHY.

Two months ago we published some of the early results which were obtained in this connection at McGill University. We believe that the case then published was the first in which Dr. Roentgen's discovery was put to any practical use. It was also one of the first cases in which the new process was introduced into a court of law as evidence, the man who fired the revolver in this case being condemned to fourteen years in the penitentiary.

Since then experiments have been carried on systematically in the William C. McDonald Physics Building, with a view of perfecting the apparatus and settling many of the vexed questions regarding the source and quality of the actinic rays. Some results have been obtained and the experimenters hope soon to be in a position to publish these. One fact has been pretty well established, which is, that without a powerful automatic air pump it is impossible to keep the tubes at a sufficiently high vacuum, therefore only those who have a well appointed laboratory can hope to obtain any uniformly good results.

To show to what perfection the apparatus has been brought, we print a photograph of a case in which a needle had been accidentally run into the palm of the hand of a girl. This happened on August 15th last, and the needle was searched for at the time through a crucial incision, but not found.

The photograph was taken on April 1st by Professor Cox, and three days later Dr. J. J. Ross removed the fragment, finding it lying on the palmar surface of the metacarpal bone between the tendons of the flexor muscles, in close proximity to the deep palmar arch.

It will be noticed that in the photograph the needle appears to be superficial to the bone, while in reality it lay beneath it. This is

caused by the greater opacity of the steel, the rays having penetrated the bone but not the foreign body.

AMERICAN PÆDIATRIC SOCIETY.

This Society will hold its annual meeting this year in Montreal on the 25th, 26th and 27th May, under the presidency of Dr. O'Dwyer, of New York. Its list of members includes Drs. Jacobi, Lewis Smith, Rotch, Holt, Northrup. Booker, Koplik, Caillé, Osler, Vaughan and Forchheimer. Many interesting papers have been promised, among others will be a report on the antitoxin treatment of diphtheria. The meetings will be open to the profession. The preliminary programme is promised very shortly.

THE BRITISH AND OTHER MEDICAL ASSOCIATIONS.

At a meeting of the Montreal branch of the British Medical Association, held upon April 15th, it was unanimously resolved to invite the parent association to meet in Montreal in 1897. It is not necessary to dilate here upon the warmth of the welcome that the British Medical Association will receive if it accepts this invitation, or upon the advantages afforded by Montreal for holding such a meeting. It is, we think, within our power to make this one of the greatest medical conventions of the decade. If Russia be unwilling to extend her hospitality to English-speaking members of our profession, Canada is not. Montreal and Moscow are both distant from the old country, but travel now-a-days is easy. It is better and healthier that the old country practitioner should seek to know the resources and resorts of his own rather than of a foreign empire. Nor is the benefit one-sided. Coming into intimate contact with all sorts and conditions of men, medical practitioners, visiting Canada, can on their return diffuse widely a knowledge of what they have seen, and can more surely help to make us and our country known and appreciated than can any other class of men.

We hope in our next issue to publish the preliminary programme of the meeting of the Canadian Medical Association, which will be held in Montreal upon the 26th, 27th and 28th of August of this year. Those desirous of contributing papers are requested to communicate at an early date with the General Secretary, Dr. F. N. G. Starr, 471 College street, Toronto.

The next meeting of the Ontario Medical Association will be held in Windsor on June 3rd and 4th. Dr. W. B. Geikie, of Toronto, will

open the discussion in medicine, Dr. Burt, of Paris, that in surgery, Dr. H. T. Machell, of Toronto, in obstetrics. Several medical men from over the border have promised to attend.

At the meeting of the American Association of Physicians, in Washington, beginning on April 29th, Dr. H. A. Lafleur contributed a paper upon "Syphilitic Nephritis."

The American Medical Association held its annual meeting this year at Atlanta, Georgia, on the 6th inst., the American Academy of Medicine meeting in the same city upon the 2nd. Dr. Osler delivered the Address in Medicine before the former body. The leading feature of this year's meeting was the celebration of the centenary of Dr. Edward Jenner's discovery of the value of vaccination, the address opening the celebration being delivered by Dr. N. S. Davis, of Chicago, Surgeon-General Sternberg contributing a paper upon "Scientific researches relating to the specific infectious agent of smallpox and the production of artificial immunity in the disease." We notice that in the section on State Medicine Dr. W. Bayard, of St. Johns, N. B., read a paper upon "Alcoholism and its relation to Public Health."

The American Orthopædic Association will hold its meeting this year at Buffalo, from the 19th to the 21st inst., under the presidency of Dr. Royal Whitman, of New York. The only Canadian name upon the preliminary programme is that of Dr. B. E. McKenzie, of Toronto, who will read a paper upon "Congenital defects of the long bones with report of cases and operations."

INTERNATIONAL MONUMENTS TO PASTEUR AND MAYER.

We have received a letter (of which the following is an abridged translation) from Dr. J. M. Beausoleil who, we gather, is working at the Institut Pasteur in Paris, and who has been nominated General Secretary for the Province of Quebec of the international subscription for the Pasteur monument in Paris:

"Rue Dutot 25, Paris.

"The town in which Pasteur was born, that in which he passed his youth and other towns, centres of districts which have gained benefit from his discoveries, are erecting busts or statues in his honour, so as to perpetuate within their walls the memory of a great and noble son or to acknowledge the services rendered by him to local industries.

Over and above these well-deserved acts of homage it is fitting that there should be a monument in Paris, erected by international subscription, and serving to call to the minds of all, Frenchmen and foreigners alike, the services which Pasteur rendered to humanity. His memory is such that all can celebrate it with common accord, for to him we owe means of victory against the common enemies—Disease and Death.

"This sentiment it is that led to the formation of a committee which met at the Institut Pasteur and unanimously determined to erect a monument of Pasteur in one of the public squares of Paris. This central committee suggested the formation of subsidary committees, both in France and abroad, for the purpose of collecting subscriptions to this end.

"In the name of the central committee we beg you to contribute to the successful outcome of our endeavour to the extent you believe yourself capable.

"We believe that it is useless to insist further upon this matter of affording homage to a great Frenchman, and we beg you to accept the assurance," etc.

This letter carries such well-known names as those of Bertrand, Permanent Secretary of the Académie des Sciences; Proff. Grancher and Brouardel; Duclaux and Roux, of the Institut Pasteur; Count Delaborde and Baron A. de Rothschild. There is, we think, no need to add any words of recommendation in favour of this proposal. What Pasteur accomplished for science and for humanity is known to all, and there will surely be many here in Canada who only require to know of this proposed monument to aid the project. Subscriptions in Canadian notes or postal orders should be forwarded to Monsieur le Trésorier de la Subscription, Institut Pasteur, 25 rue Dutot, Paris, and marked "Section Canadienne."

A similar memorial is proposed in honour of the great Danish physician, the recently deceased Prof. Wilhelm Mayer, to whom we owe the recognition of adenoid hypertrophy of the roof of the pharynx. He it was who first recognized the prevalence of this condition, the serious troubles to which it gives rise, and devised the means for its prompt and easy cure. Compared with Pasteur and his work, Mayer's work may seem relatively small, but its outcome is perhaps more easily recognised in individual cases, and undoubtedly there are hundreds of thousands throughout the world who have reason to thank him.

It is now proposed to erect a monument to his memory in his native

city, Copenhagen, and committees have been formed in all the principal countries of Europe to this end. Canadian contributors are begged to forward their subscriptions to Dr. H. S. Birkett, 123 Stanley street, Montreal.

MONTREAL GENERAL HOSPITAL LIBRARY.

A library has been established at the Montreal General Hospital for the use of the resident staff, and already a number of volumes have been donated. The Committee of Management desire to thank the following members of the attending staff and others for the gift of books to the library of the resident medical staff: Drs. D. C. McCallum, T. G. Roddick, F. J. Shepherd, Wm. Osler, Geo. Wilkins, A. D. Blackader, G. E. Armstrong, F. A. L. Lockhart, J. M. Elder, F. G. Finley, J. A. Hutchison, R. C. Kirkpatrick, T. J. Alloway. H. S. Birkett, H. D. Hamilton, Alex. Proudfoot.

The following is the list of books given:

Annual of the Universal Medical Sciences, 1894; Foreign Bodies in Surgery (Poulet) two volumes; Diagnosis and Treatment of Ear Disease (Burk); Science and Art of Surgery (Erichsen), two volumes, 1895; American Text-Book of Surgery, 1895; Minor Surgery and Bandaging (Wharton); Diseases of the Skin (Crocker); Duplicates from Library Medical Faculty; Practice of Medicine (Osler), 1895; Diseases of the Nervous System (Hammond); Clinical Diagnosis (Von Jaksch); System of Medicine (Reynolds); Practical Therapeutics (Hare); Webster's Unabridged Dictionary; Clinical Atlas of Venereal and Skin Diseases (Taylor); Diseases of Women (Thomas and Mundé); International Clinics, 12 volumes; Physical Diagnosis (Mussen); Treatise on Continued Fevers (Murchison); Treatment of Wounds and Fractures (Sangee); Encyclopedia of Obstetrics; Diseases of the Stomach (Ewald), 1895; Practical Dietetics (Thompson); System of Gynæcology (Mauer); Minor Surgical Gynæcology (Munde); Diseases of the Nose and Throat, two volumes (Bosworth); Diseases of the Ear, Nose and Throat, two volumes; Diseases of the Eye (Burnett).

At the last moment before going to press we learn that our *confrère*, Dr. T. G. Roddick, has consented to become a candidate in the Conservative interests for the St. Antoine division of Montreal at the forthcoming elections for the Dominion Parliament. With Sir W. Hingston in the Senate and Dr. Roddick in the lower house the medical profession in Montreal would be efficiently represented in Dominion politics.

The following appointments to the resident staff of the Royal Victoria Hospital have recently been made: House Physicians, Drs. Robins and Argue; House Surgeons, Drs. Carron and Archibald. Drs. Robertson, Nicholls, Fry and McCarthy, who have retired, leave shortly for a prolonged course of study at German and Austrian universities.

Drs. Hogle, Fisk, Mitchell, Patrick, McDonald, Leslie and Macartney have been appointed to the resident staff at the Montreal General Hospital. Drs. Byers and Kerry, whose term of office has expired, have already sailed to Europe. Dr. Kinghorn is undertaking the duties of Medical Superintendent during the illness of Dr. Ridley Mackenzie.

We have received from the publishers the first number of yet another American monthly medical journal, *The Clinical Recorder*. The opening words are, "Were we to attempt to explain why we appear we would apologise for our existence. This we do not propose to do." Judged by this first number the journal has no *raison d'être*. We would suggest that an apology would be welcomed, in fact is urgently demanded.

NEW BOOKS, ETC., RECEIVED AND NOTED.

Voice Building and Tone Placing, By R. Holbrook Curtis, Ph.B., M.D. New York : D. Appleton & Co. 1896.

The International Medical Annual. New York ; E. B. Treat. 1895.

Diseases of the Rectum, Anus and Contiguous Parts. By S. G. Gant, M.D. Philadelphia : The F. A. Davis Company. 1896.

The National Formulary. Lea Brothers & Co., Philadelphia and New York. 1896.

La Bicyclette. Dr. Just Lucas-Championnière. Extrait de la Revue Mensuelle du Touring Club de France.

Ueber das Leben und Werken von Henri Dunant. Bern, Berner Tagblatt.

La Hernie Ombilicale. Extrait du Journal de Médicine et de Chirurge Pratiques, 25 Août, 1895.

Etude Clinique sur 64 cas de Trépanation du crane, par le Dr. Just Lucas-Championnière. Extrait du Journal de Médecine et de Chirurgie Pratiques, 25 Mai, 1894.

Public Health Laboratory Work. By Henry R. Kenwood, M.B. London : H. K. Lewis. 1896.

Current from the Main. By W. S. Hedley, M.D. H. K. Lewis. 1896.

Obituary.

PAUL BERTHIAUME.

Dr Paul Berthiaume, who became house surgeon at Notre Dame Hospital on 1st of April last, succumbed to pneumonia on May 1st, death taking place under circumstances that have evoked much sympathy on the part of his friends. His life was sacrificed in devotion to duty. The case of one of the patients in the hospital was of a very critical nature and demanded unremitting attention. Dr. Berthiaume watched by the sick bed night after night, with the result that he contracted the acute attack of pneumonia which ended fatally. He was the third house surgeon, and by his demise a promising young life has been cut off, for he was only 21 years of age. He was a graduate of Laval, obtaining a diploma at the close of the last session.

THE.

MONTREAL MEDICAL JOURNAL.

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Original Communications.

HÆMORRHAGIC TYPHOID FEVER.

WITH THE REPORTS OF FOUR CASES.

(From the Medical Clinic, Royal Victoria Hospital.)

BY

Albert G. Nicholls, M.A., M.D.,

Resident Physician.

Hæmorrhage in typhoid fever is a phenomenon which clinically is well recognised, although its pathology is by no means yet well understood. The term "hæmorrhagic typhoid fever" is not intended here to include cases of intestinal hæmorrhage due to ulceration, which are common enough, but is applied to those much rarer conditions in which a general hæmorrhagic diathesis makes its appearance, or in which we get local hæmorrhagic manifestations in the skin, mucous membranes, or in the various organs. Hæmorrhagic eruptions which are the rule in typhus, for example, are found exceptionally as complications, sometimes with hæmaturia, in many of the other specific infectious diseases, such as yellow fever, variola, measles, scarlatina, influenza, bubonic plague, septicæmia, malignant endocarditis and others. Such complications in typhoid are very rare, but their possibility has been recognized for many years. Liebermeister, in Von Ziemssen's Cyclopædia, states that hæmorrhages into the skin, true petechial vibices, are most likely to occur in patients of a hæmorrhagic diathesis, but occasionally appear in others. Besides this he notes the occurrence of hæmorrhages from the mucous membranes of the nose, stomach, bowels, gums, hæmoptysis, hæmaturia, ecchymoses, on serous surfaces, extravasations of blood into serous cavities, and meningeal and cerebral effusions. Murchison, ("Continued Fevers," 1873, p. 609,) had occasionally observed hæmorrhages into the muscles.

Wilson and Loomis, too, mention hæmorrhages from mucous tracts and into the skin.

By far the most common complication is purpura hæmorrhagica, but even its rarity may be gathered from the following figures. Out of 1420 autopsies at Basle on typhoid cases 12 showed purpura. Three of these were also subjects of a general hæmorrhagic diathesis. Onskow,[1] in a study of 439 fatal cases out of 6513, occurring during five years, describes general hæmorrhagic diathesis in 4 cases; hæmorrhagic pleurisy in 9; hæmorrhage into the cord, particularly into the anterior cornua, was found in a considerable number of cases; in a few cases hæmorrhage into the uterus. The various complications so far as I have been able to make out from the literature appear to occur in the following ratio:

Purpura hæmorrhagica	35 cases.
Hæmorrhages into muscles	25
General hæmorrhagic diathesis	16
Hæmorrhagic pleurisy	9
Hæmaturia	7
Hæmatemesis	4
Hæmoptysis	3
Pelvic hæmatocele	2
Hæmorrhage into bladder	2
Hæmatometra	Several.
Hæmorrhage into spinal cord	Several.
Hæmatoma of ear	1 case.
Cerebral hæmorrhage	1
Hæmorrhage into ovary	1

Epistaxis is so common a feature as to scarcely deserve mention, but as Loomis points out, if it occurs about the third week it may prove a dangerous complication.

The favourite seat for the purpuric eruption is about the joints, the extensor surfaces of the limbs, the thorax, back and abdomen. The spots are usually small and petechial in character and may be present about the roots of the hairs. Often, too, large subcutaneous ecchymoses of a livid blue colour may develop along with the petechiæ.

The general hæmorrhagic diathesis is an extremely grave feature and is generally fatal. The clinical appearances vary, but there may be bleeding from the mucous membranes, hæmoptysis, hæmatemesis, petechiæ and hæmaturia. It is not to be forgotten, too, that hæmorrhage from the bowels may be an expression of a general hæmorrhagic tendency.

Hæmaturia may be simply a passive flux of blood, or may signify an acute nephritis. In the absence of any complete observations on

[1] Onskow, Arcnh. d. Sc. Biolog, St. Petersburg, II., 1893, No. 1.

the subject, it is difficult to assign a cause for these manifestations above referred to. Liebermeister considers that the vessels in common with the organs are apt to suffer severe parenchymatous degenerations, and this in combination with some blood dyscrasia is an exciting cause of blood extravasation. It is no doubt possible for such a condition to result from the action of the toxic products of bacillary metabolism. Some of the cases, too, if not indeed a large number, are probably septic in origin. Prof. Adami (Mont. Med. Jour., March, 1894,) reports a case in which empyema was present, followed by pneumonia in the left lower lobe. A week before death peritonitis set in with diarrhœa, tympanites and incontinence of fæces. The temperature was septic. At the necropsy the following condition was found: Healed empyema; five ulcers in the ileum, three of which had perforated; petechial and ecchymotic spots on neck, chest, in upper extremities, gums, tongue, tonsils, stomach, small intestine, large intestine; subendocardial and subpericardial petechiæ; hæmorrhages into liver, kidney, right suprarenal, retroperitoneal glands, bladder, into the consolidated lobe of right lung and into the pelvis of the right kidney.

Cultures from the organs gave a preponderance of the colon bacillus.

Some cases as they occur later on in the disease might be classed under the term cachectic. Thrombosis may play some role in the causation, as in certain cases of cutaneous hæmorrhages the capillaries supplying the subcutaneous tissues have been found plugged. In such cases the hæmorrhages usually take a ring-like form. The purely local effusions in some cases result from embolism or from vaso-motor derangements. That the nervous system can play a very important part in the production of hæmorrhages is seen in cases of hysteria and locomotor ataxia. Until the cases are studied more fully, however, it is quite impossible to give all these factors their proper weight.

Case I.—A. L., male, æt. 27. Admitted to the Royal Victoria Hospital on Feb. 12th, 1895. Personal and family history unimportant. The patient came in with a history of malaise, headache, loss of appetite and diarrhœa for one week. The temperature had ranged from 101° to 103°. Two days before admission a slight cough set in, but with no expectoration. The condition on admission was as follows: Expression dull, cheeks flushed, tongue moderately coated. Temperature, 102.2°; pulse, 90; respiration, 24.

Except for a slight cough the respiratory system was normal.

Digestive System.—Anorexia and constipation. Abdomen not distended. No abdominal tenderness. No true rose-spots but a faint

sub-cuticular rash of a dull reddish-brown colour was noticed on the chest and abdomen. Spleen easily palpable. Urine, acid, high coloured, 1033, excess of urates. No albumen. No sugar. Ehrlich's reaction absent. Other systems negative.

The patient was treated by cold sponging, and the temperature gradually fell until Feb. 17th, when the temperature did not rise above 99.4°. The temperature immediately began to rise again, and on the 21st the patient had two severe rigors, the temperature reaching 104.6°.

On the next day he complained of severe pain in the right side necessitating the use of morphia. Over the lower half of the right thorax impaired resonance was made out, with increased vocal fremitus and feeble breathing. The following day blowing breathing was noted, with fine crepitations.

On March 1st thrombosis of the right femoral vein took place, followed a week later by thrombosis of the left femoral. By March 3rd the pneumonic condition had fairly well cleared up, but on the 13th a friction rub was made out at the extreme right base and this was followed by effusion into the right pleural cavity. A copious petechial eruption now made its appearance. This was very marked over the front and back of the thorax and upon the abdomen. A number of purpuric spots were present about the extensor surface of the knees.

On March 29th the throat became inflamed with the development of a superficial ulcer about the size of a quarter of a dollar on the posterior pharyngeal wall. On April the 17th the temperature became subnormal, and, in spite of the numerous complications, the patient, even if tardily, gained strength and became convalescent. He was discharged cured on May the 7th.

Case II.—A. C., female, æt. 16, entered the Royal Victoria Hospital on October 4, 1895. Personal and family history negative. Before entering the hospital she had been sick twelve days with headache and general malaise. The headache was very intense. For ten days there was much diarrhœa and for a week a slight cough.

Condition on Admission—Well-nourished girl, with flushed cheeks and bright eyes. Mental state good.

Respiratory System—Intense bronchitis, with some consolidation of the apex of the right lung.

Vascular System—Heart, accentuated aortic second sound. Pulse of moderate tension.

Digestive System—Tongue dry and fissured and coated in centre with thick white fur. Anorexia, diarrhœa. Abdomen moderately distended. Tenderness in right iliac fossa and in epigastrium. A few rose-spots on thorax and abdomen. Liver and spleen not palpable.

HÆMORRHAGIC ERUPTION IN TYPHOID FEVER.

Portion of Thorax and Abdomen from Case No. III.

Genito-urinary System—Menses always rather profuse. Urine acid dark amber colour, 1023. Small amount of albumen, no sugar.

Temperature 104°, pulse 112, respiration 24.

Diary of Case—Oct. 5, 6 p.m. Complained of severe abdominal pain and passed a large amount of bloody urine. There had previously been some retention. A few granular casts were noticed in the urine.

Oct. 6. Patient noticeably anæmic. Catheter specimens of urine taken every six hours all contain bright blood, albumen and casts. Upon the legs are numerous minute hæmorrhages about the size of a pin's head. There is also bleeding from the mucous membranes of the mouth and gums.

Oct. 7. Condition as before. Blood examination, red cells 3,720,000, white 6,000, hæmoglobin 60 per cent. Stained specimens showed a few mononuclear leucocytes.

Oct. 12. Blood disappearing from urine. No bleeding from mucous surfaces and the spots on the legs are fading.

Oct. 13. Temperature reached normal and remained there.

Oct. 15. Urine free from blood. Albumen and casts still present.

Discharged on October 25th cured. Recovery uneventful.

Case III.—C. M., male, æt. 18 entered the Royal Victoria Hospital on August 31, 1895. Personal history negative. Family history, one sister died of rheumatism and heart disease. He entered the hospital on the seventh day of his illness. He was rather suddenly taken ill with severe headache and general weakness, he went to bed and on the next day vomited and had epistaxis. Pain set in, in the lower abdominal region, with a great deal of diarrhœa. During the next two days he felt somewhat better and went to work, but on the third day began to suffer with severe pain in the neck, back and legs, accompanied by severe diarrhœa.

On admission the temperature was 105°, pulse 96, respiration 28. Face flushed and expression heavy.

Respiratory System—Normal.

Vascular System—Pulse dicrotic. Heart normal.

Digestive System—Tongue dry and furred, with red edge. Anorexia, severe diarrhœa and vomiting.

Abdomen not specially distended. Slight tenderness in right iliac fossa and over the spleen. Rose spots present. Spleen readily palpable.

Urinary System—Urine high coloured, acid, sp. gr., 1031. No albumen, no sugar. Diazo-reaction present.

Diary of Case—Sept. 5. Diffuse macular eruption on thorax and

abdomen. Spots on the size of a pin's head and only partly disappear on pressure; they are of a bluish-red colour.

Sept. 7. At 7 p.m. the pulse was almost imperceptible and strychnine was given hypodermically. Modified bath given henceforth.

Sept. 8. Tongue dry and fissured. Somewhat stuporose.

Sept. 9. Delirious last night. Subsultus marked this morning. A few superficial pustules have developed about the knees and on anterior surfaces of the tibiæ. Vomiting has ceased.

Sept. 12. A bed-sore has developed over the sacrum and two small ones over the right trochanter.

Sept. 13. Very stuporose. Abdomen much distended.

Sept. 16. Marked delirium.

Sept. 21. Pulse fair. Mental state dull. Abdomen considerably distended. An ecchymotic patch, four inches by two, has made its appearance in the mammary line in the right lower thoracic zone; also a smaller one about two inches long in a corresponding position on the left side. A few scattered petechial spots were noticed on the back. A large abscess was opened just below the right patella.

Sept. 22. An abscess the size of a plum developed in the right inguinal region and was opened three days after. Petechial eruption on the thorax and abdomen very profuse.

Sept. 27. Distention of abdomen less. Patient's general condition is much better. Hæmorrhagic spots are fading. Tongue becoming clean. Temperature normal for the first time.

Sept. 29. Skin desquamating on the face.

Oct. 1. Abscess opened on inner side of right tibia.

Oct. 4. A second abscess has formed below the last. No sign of inflammation present.

Oct. 8. An abscess three inches long has developed in Scarpa's space on the right side, also an abscess two inches above the knee.

Oct. 10. Abscesses evacuated. From one which was deeply situated in the muscle I took a culture and obtained a pure growth of staphylococci. Temperature rose to 101°; fell next day.

Oct. 12. Abscess on outer side of right leg about five inches below the knee.

Oct. 24. Hæmorrhagic eruption has quite disappeared.

Nov. 8. Discharged cured.

Case IV.—Robert C., æt. 32, entered the Royal Victoria Hospital on November 2, 1894. Personal and family history good. Entered the hospital on the eighth day of his illness.

On leaving work one evening he felt rather chilly and had a slight headache. The next evening the headache became very severe, and

two days later he felt nauseated and began to suffer from severe pain in the back and legs. He called in a physician, who found his temperature to be 104°. The next two days he felt a little better, but the pains soon returned, with the addition of pain in the abdomen, and his condition remained unchanged until his admission.

On admission he was found to be a strong-looking young man. Face flushed and expression dull.

Respiratory System—Slight cough. Nothing abnormal detected in the lungs.

Vascular System—Pulse dicrotic. Heart normal.

Digestive System—Tongue dry, furred in the centre, with red edges. Breath heavy. Bowels loose. Abdomen distended. Some tenderness in the right iliac fossa and over splenic region. Spleen not palpable. No rose-spots.

Urinary System—Urine high-coloured, acid, sp. gr. 1025. No albumen. No sugar.

Diary of Case—Nov. 10. Patient has progressed favourably. Considerable abdominal distension. No delirium and no complications.

Nov. 16. He has had 25 baths up to date; now discontinued. Heart normal on percussion.

Nov. 20. The temperature fell suddenly from 102° to 98°, and the pulse increased from 80 to 120, he complained of pain, and slight tenderness was found in the right iliac fossa. Four hours later the temperature had reached 101·6°, and the pulse became 140, running in character. The patient felt well.

Nov. 21. Pulse 146. No new symptoms. No hæmorrhage.

Nov. 22. Pulse 160. No delirium. Mental state clear.

Nov. 23. Pulse 168. Temperature 103° at midnight.

Nov. 24. Pulse 180. Feels well.

Nov. 25. Pulse 190. No marked lividity. Face drawn, pale and anxious. At 2 a.m. he had a rigor lasting ten minutes.

Nov. 26. Urine normal. Lungs normal.

Nov. 27. Temperature subnormal. The thermometer would not register between 10 a.m. and 4 p.m. Pulse 185. No cardiac enlargement.

Nov. 28. Temperature subnormal. Mind clear.

Nov. 29. Heart dulness begins at a point one-quarter of an inch to the right of the left border of the sternum and passes out to the nipple line. Apex in 6th space in nipple line. Slight lividity of the extremities. Temperature normal.

Dec. 1. Temperature reached as low as 95°. Pulse 130. Mind clear.

Dec. 3. Restless and irritable. Abdomen distended, with marked tenderness in the left flank. Over the knees the skin is dry, cracked and raw. Marked lividity. Respirations gasping. Lungs normal. Pulse 120, temperature 95°, respirations 23. Distinct pulsation in the veins of the neck.

Dec. 4. Lividity marked. Hæmorrhagic spots as a fairly copious eruption over abdomen, back, and upon the feet. Delirious. Given inhalations of oxygen without apparent benefit. Coffee-ground vomiting and altered blood in the stools.

Dec. 5. Numerous crepitations at the base of the right lung. Heart dulness greater than before. Marked delirium.

Dec. 6. Extreme dryness and fissuring, with petechial spots upon the extensor surfaces of the extremities. Crepitations in the lungs a little less. Coffee-ground vomiting. Marked emaciation. Pulse 148, temperature 97°, respirations 28.

Dec. 8. Urine normal. Numerous crepitations over the bases of the lungs. Resonance fair. Petechiæ on the inner side of the thighs.

Dec. 9. Pulse 160. Voice hoarse. Colour sub-icteroid.

Dec. 10. The patient died with gasping respiration at 9 p.m.

Necropsy (performed by Prof. Adami).—Abstract from Post-mortem Note Book: Right pleural cavity contained 30 c.c. of turbid blood-stained fluid with flocculi. Left cavity contained 170 c.c. of similar fluid.

Lungs—Broncho-pneumonia in parts. Infarcts.

Heart—Pericardium contained 100 c.c. of clear, slightly blood-stained fluid. The heart was very large and all the chambers were dilated, but especially the right side. Tricuspid orifice admitted the tips of five fingers. Mitral orifice admitted four fingers. Aortic and pulmonary valves normal. Heart muscle pale. Commencing fatty change about sinuses of valsalva.

Kidneys—Cortex pale.

Liver—Pale, fatty and friable.

Spleen—Not enlarged. On section fairly firm, with congested appearance. White infarcts present.

Pancreas—Pale and very firm.

Intestines—The ileum presents occasional areas of hæmorrhagic congestion of the mucosa. In the lower three feet were numerous ulcers, with smooth floors, of oval shape, with long axis transverse to the bowel. A typical typhoid ulcer was found just above the ileo-cæcal valve. In the last foot of the ileum was a development of small lymphoid miliary nodules protruding above the surface.

Microscopic Examination.—*Lungs*—Areas of broncho-pneumonia. Infarcts. Either a diplococcus or a very small bacillus, whose ends are stained deeply, was found enclosed in large cells. A few cocci were present.

Kidneys—Congested. Generalised chronic interstitial change, with recent parenchymatous. Chronic glomerular nephritis. Same bacillus found as in lung.

Liver—Brown atrophy. Along the portal sheaths are occasional infiltrations of small round cells extending into or replacing the liver cells. The same bacilli as before.

Spleen—Congested. Infarcts. Hæmorrhages into the stroma. Slight tendency to general fibrosis. Bacilli as before, the largest being about one-half to two-thirds the diameter of a red corpuscle in length.

Pancreas—Some atrophy of the cells, with definite infiltration of the stroma. Same bacillus as in other organs,

Supra-renals—Cortex cloudy. Medulla congested.

Case I. presented at first the characteristics of a mild attack of typhoid. After admission the temperature gradually fell, reaching the normal by the sixth day. The temperature then rapidly rose, followed on the 9th day by the chills. From that time on the temperature was characteristically septic, and the pulse, which at first had been about 86, now increased up to 100 to 120. The chills, the septic temperature, and the profound exhaustion of the patient, with the evidence of severe blood destruction, made it almost certain that we were dealing with a case of secondary infection. Unfortunately cultures from the blood were not taken. The case was noteworthy, too, on account of the numerous complications.

Case II. had a very mild attack of typhoid, and in spite of the general hæmorrhagic tendency which supervened made a rapid and uninterrupted recovery. At no time did she appear to be severely ill.

Case III. was an exceptionally severe case from the start, and was complicated by vomiting and diarrhœa. The temperature became normal at the end of the fifth week, and it was after the severity of the case began to moderate that the hæmorrhages made their appearance. The appearance of the patient with the extensive cutaneous hæmorrhages was very striking. The abscesses were an incident of convalescence.

Case IV. was specially interesting. The sudden drop in the temperature on the 26th day, with the abdominal pain and increased rapidity of the pulse, pointed at the time to perforation. But as further symptoms did not develop it would seem to have been one of those sudden crises which occasionally occur in typhoid without any as yet explained cause. The marked clinical feature of the case was the great rapidity of the heart, which remained between 160 and 190 for 17 days. Consequent upon this was the gradual dilatation of the organ, which was very extreme. Notwithstanding this grave condition the patient's mind remained clear till near the end, and he expressed himself as feeling well.

It will be seen that out of these four cases three resembled Dr. Adami's case, already referred to, in presenting indications of secondary septic infection. In the first the chills and temperature chart afforded the strongest presumptive evidence of such infection, in the third the development of multiple abscesses due to the pyococcus aureus was a characteristic complication; while in the last there was found in all the organs a bacillary form which, by its polar staining,

resembled the micro-organisms of hæmorrhagic septicæmia in the lower animals. While it is true that a hæmorrhagic condition might be due to the bacillus of typhoid, and to the cachexia thereby induced, it would seem evident that, in the first place, in none of these cases was the purpura or hæmorrhage due directly to virulence of the bacillus.

Where we have to deal with malignant hæmorrhagic cases of infectious disease—smallpox, scarlatina, bubonic plague, &c.—the purpuric condition is characteristically of early development, at times so early that the patient dies before the typical symptoms of disease have time to develope. Or more correctly, we can distinguish two conditions : a condition of primary purpuric manifestation, with every evidence of most malignant course of an infectious disease, presumably due to extreme virulence of the infectious agent, and again a condition of later purpuric and hæmorrhagic manifestations, which while possibly due to cachexia—to changes in the blood leading to capillary thrombosis and to degenerative changes in the vessel walls leading to easy rupture—may also be brought about by secondary infection and the development of what is nothing more nor less than a complicating septicæmia. Or, what is yet more probable, it is the combination of these two—of the cachexia and the septicæmia —that predispose to the purpuric state.

Now in the cases here brought forward, we certainly are not dealing with primary typhoidal purpura. In three out of the four cases there was recovery, not a rapidly supervening death, while the condition did not show itself until the 36th, 13th, 28th and 40th days, respectively, of the disease. Nor again was it associated with any clear symptoms of augmentation of the virulence of the typhoid bacillus, or relapse. Further, in none of the cases was there obtainable any evidence of the pre-existence of a hæmorrhagic diathesis. While, as I have said, we cannot neglect cachexia as a factor, and must, I think, hold that the peculiarly extensive degeneration of muscle characteristic of typhoid is, in itself, a sufficient explanation of the recorded cases of hæmorrhage into the substance of the recti and other muscles, and while we must acknowledge the liability to thrombosis, as evidenced by the frequency of obstruction of the vessels of the lower extremities in typhoid patients, we cannot neglect the fact that in each of these four cases the lymphoid swelling in the intestines must, even in the earliest, have given place to ulceration with the large possibility that this opens up of secondary infection from the intestinal contents. We have abundant evidence that such secondary infection with one form—the B. coli communis—is peculiary common.

Hence, taking into account the evidence of the presence of septic disturbance in three out of the four cases, I cannot but conclude that (so far as it is wise to base any conclusion upon but four cases) it is probable that many of the cases of purpura and hæmorrhage occurring during the course of enteric fever are secondary, and associated with septic complications.

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UPON
ARRESTED OR REPAIRED DISSECTING ANEURYSMS, WITH THE REPORTS OF TWO CASES.[1]

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Among the diverse forms of aneurysms one of the rarest is that termed, first by Laennec, the "aneurysma dissecans," a form in which the inner walls of the aorta or one of the large arteries having ruptured, the outer coats remain intact, the blood dissecting a passage between the layers of the middle coat for, it may be, long distances. There are altogether about two hundred cases of this condition that I can find recorded, and in by far the larger number of these death evidently occurred either immediately or within a few hours, most frequently by the blood forcing its way into the ascending aorta and thence into the pericardial sac. Only in a small percentage of the cases is death not the direct and speedy result, compensation being established and the dissecting channel undergoing repair either by the development of secondary openings into the vessel, or by the organisation of the blood, which after escaping between the walls has become clotted. There are singularly few cases on record of this last mode of repair; it is more common to find that, where death is not the direct result of the condition, the dissecting channel gains an endothelium, a channel being formed, opening above and below into the aorta or one of the larger arteries, and resembling the primitive vessel so closely that it is not to be wondered at that some of the earlier cases of the condition were described as congenital abnormalities.

How rare is this condition may be inferred from the fact that it did not gain recognition until this century, that Peacock in 1863 was only able to collect eight cases, and Boström in 1885 only seventeen, although it ought to be added that the latter observer made a somewhat arbitrary classification and purposely omitted two or three cases, which from their course and characters I feel bound to include with the others in one group. Aneurysms which show evidence of progressing repair must, I think, be considered along with those in which repair is complete, or in other words, to employ Boström's

[1] Read before the Montreal Medico-Chirurgical Society, April 3, 1896.

terminology, "healing" aneurysms must be classified along with "healed." By this means one is enabled to divide dissecting aneurysms into the two clearly defined classes of those in which the dissection is progressive and is *per se* the cause of death and those in which dissection of the arterial walls has been arrested and has not directly led to the fatal event.

The two cases here to be discussed are of the latter category, and in their anatomical features and clinical histories present so many points of similarity and interest that they well deserve to be placed upon record. The more recent of the two, and the more extensive, was obtained at a recent necropsy at the Royal Victoria Hospital, the older has been for some few years in the museum at McGill University and has already been briefly noticed in this JOURNAL.[1] Through the kindness of Dr. Finley, who performed the post-mortem, and of Dr. Shepherd, in whose wards at the General Hospital the patient died, I am enabled to record here the fuller details. For the use of the very full clinical notes of the first case I am indebted to Dr. Jas. Stewart.

CASE I.—This was obtained from the body of T. F., a patient of Dr. Stewart, æt. 64, by occupation a labourer and carter. The patient, as I learn from Dr. Reilly's notes, had been accustomed to heavy work and was addicted to alcoholism. In 1865 he suffered from sunstroke; in 1891 he was in the General Hospital under Dr. Armstrong with a compound comminuted fracture of the right leg; four months before admission to the Royal Victoria Hospital his left leg was severely bruised by a bar of iron falling upon it. His final illness appears to have begun nearly a year before his death. In April, 1895, while at work he was suddenly seized with dyspnœa and a sense of oppression in the chest, and was so ill that he had to be carried home. After being in bed for several days he went back to work. The next month he suffered from another and similar attack, which incapacitated him for a few days, while a third attack in July led to his being confined to bed for several weeks. Later, cough and expectoration supervened. In December swelling of the legs was first noted, and early in this month he was admitted to the Royal Victoria Hospital, under Dr. Stewart, complaining of pain in the left hypochondrium, present only at times and increased by lying on the left side. There were also paroxysms of pain of an anginoid character over the pericardial area.

Not to enter too fully into the symptoms presented in this case, it may briefly be stated that he presented evidences of arterio-sclerosis, with increased vascular tension, enlarged heart with weak sounds, soft apical systolic murmur transmitted to the left axilla, a fugitive

[1] This Journal, XXI., 1892. p. 700.

diastolic murmur and reduplication of the second pulmonary sound. There was poor expansion of the chest, with dulness over the left side and absence of breath sounds; expiration was prolonged. The abdomen was everywhere so tender on pressure, more especially over the epigastrium and in the left hypochondrium, that satisfactory palpation was impossible. The urine contained a small amount of albumen, with hyaline and granular casts and renal epithelium.

The chest was aspirated and 76 ounces of fluid were removed. With rest and digitalis the condition of the patient improved so much that he was discharged on February 3rd, there being still some fluid on the right side and a double murmur at the apex. The œdema had disappeared.

The patient was re-admitted upon February 29th, complaining of severe pain in the stomach and great thirst. Save for occasional attacks of dyspnœa he had been fairly comfortable since leaving the hospital, until two or three days prior to re-entrance, when he had been suddenly seized with agonizing pain in the right hypochondrium, extending well into the mid-axillary line. This was soon followed by severe pain in the umbilical and epigastric regions, as also in the back opposite to the level of the epigastrium. The pain was described as sharp and stabbing, present all the time and very much increased on movement or pressure; in fact the patient could not bear the slightest touch. Turpentine stupes had been applied to the abdomen, but the pain continued for twelve hours longer, when it ceased. Upon re-admission the pulse was found irregular in rate and force; there was inspiratory retraction of the basal intercostal spaces with poor expansion. The base of the right lung was dull, with here and there a friction rub. The patient suffered from severe paroxysms of abdominal pain, for which morphine was employed. There were also repeated paroxysms of dyspnœa.

Upon March the 28th the fluid in the right side of the chest having increased, 84 ounces were removed. He recovered well from the tapping, but some hours later he began to retch, and during the attack he died suddenly. The condition was diagnosed as one of chronic myocarditis, acute nephritis and pleurisy with effusion.

Besides the dissecting aneurysm and the associated arterial changes, the necropsy revealed well-marked hypertrophy and dilatation of the heart, emphysema and bronchitis with œdema of the lungs, and serous pleurisy of the right chest, adhesive pleurisy on the left side. The kidneys were sclerotic, of the small red granular type. The aorta presented an extreme condition of nodose arterio-sclerosis, the hypertrophy of the intima being very considerable and of a hyaline fibroid

type rather than calcareous. Indeed there was only one calcareous patch, 2 cm. across, at the beginning of the descending aorta and an atheromatous ulcer of small size, around the origin of the right renal artery. The fibroid hypertrophy was especially thick around the origin of the innominate, left subclavian and carotid, and there was great thickening also around the offset of the cœliac axis, associated here with not a little deformity of the aorta. 3.25 cm. above the cœliac axis was situated a large transverse rupture of the inner walls. (Vide fig. 1.) The rupture was situated, therefore, above the diaphragm, near to the point where the aorta begins the oblique course through that septum, the point corresponding to the body of the tenth dorsal vertebre. The rupture was 4.5 cm. across, and began 5 mm. to the left of the middle line behind, extending round the right side of the aorta to the middle line in front. The breadth of the aorta immediately above the rupture was 6.25 cm. This rupture which was unassociated with any evidence of atheromatous ulceration gave entrance into a long channel, extending both upwards and downwards. The upper channel was filled below with fairly firm adherent reddish-grey clot, which gave way to pale discoloured fibrin about the middle of the thoracic aorta, and from here a channel containing thin layers of fibrin and almost obliterated, continued upwards along the right side of the aorta as far as the middle part of the arch. In a downward direction the channel was relatively free from blood clot, what there was being soft, loose and recent. This channel was large, roughly triangular, and smooth-walled, passing along posteriorly somewhat to the right, and at the bifurcation it also bifurcated, passing along the common iliacs, and from them along the external iliacs. Here on the right side it opened again into the lumen of the right external iliac, close to its lower end, 4.3 cm. below the bifurcation of the common iliac, 9.5 cm. from the bifurcation of the aorta. On the left side it continued still further, opening in the first portion of the femoral artery, 7 cm. below the bifurcation of the left common iliac, 14.5 cm. from the aortic bifurcation. The channel ran along the inner aspect of the common iliac becoming posterior below.

Upon the right side a small dissecting channel continued down the posterior and outer side of the right internal iliac artery—for what distance I cannot say, the passage not having been noticed until some little time after the performance of the necropsy, and this artery having been cut near to its origin. Sections taken from the cut end indicated that it can at most have passed down for a few centimetres, the dissecting channel being separated from the intima by the merest trace of muscle tissue.

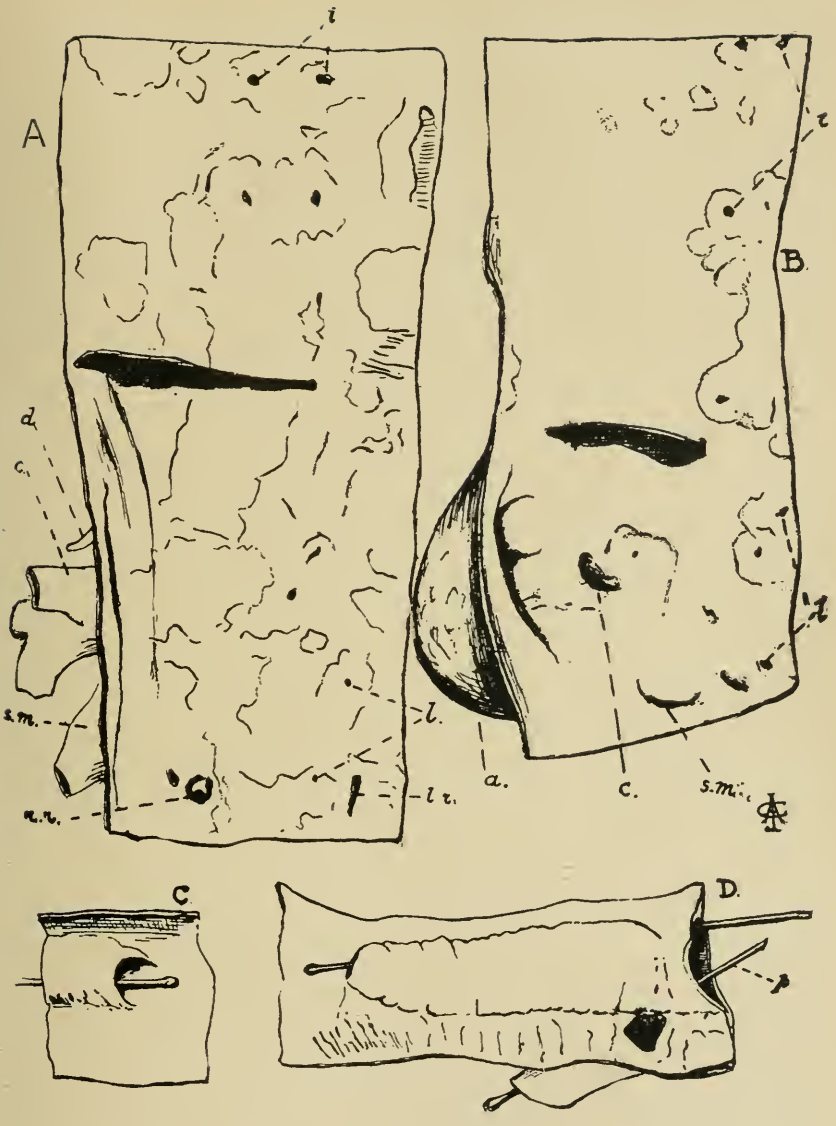

FIG. 1.

A, Thoracic and Abdominal Aorta of Case I, showing primary rupture. Two-thirds natural size. i. Intercostal arteries. d. Diaphragmatic. c. Cœliac axis. s.m. Superior Mesenteric. r.r. Right renal artery. showing ulcer and perforation around origin. l.r. Left renal artery. l. Lumbar arteries.

B. Thoracic and Abdominal Aorta of Case II , showing primary rupture. Upon the same scale. The aorta has been opened to the left of the median line. a. Saccular aneurism of anterior wall of abdominal aorta. Other letters same as in Figure A.

C. Opening of re-entrance in left femoral artery in Case I.

D. Opening of re-entrance in right arterial iliac artery, (Case I.) The probe, p passes down the dissecting channel along the internal iliac artery.

The wall of the sac below the primary orifice was smooth and glistening but somewhat irregular and of a dull red colour, as though pigmented or the seat of considerable post-mortem imbibition.

Several of the lumbar arteries arose from this sac, their primary origins from the aorta being in general closed up and represented by depressions. In addition, the suprarenal arteries and the inferior mesenteric had similar secondary origin, with closure of the aortic orifices.

Apart from the primary and terminal openings there was but one communication of any size between the aorta and the sac. This was round the origin of the right renal artery where there were still the remains of an atheromatous ulcer, indicating the means whereby the communication had become established.

Case II. (Specimen 18,764 Museum Med. Coll. McGill.)—As already stated a description of this specimen and a history of the case has already been published, but the account in the Montreal Medical Journal is brief and incomplete, and through the kindness of the staff of the Montreal General Hospital I have been able to obtain the fuller history and to abstract the post-mortem report.

Mrs. E., aged 43 years, entered the Montreal General Hospital, under Dr. Shepherd, on August, 15th, 1892, complaining of abdominal pain, vomiting, anorexia and progressive emaciation. She was married, the mother of nine children, the last having been born thirteen years previously.

In 1888 she had suffered from rheumatism and two years later she began to suffer from dyspepsia with palpitations and some loss of flesh. This condition continued without amelioration. Six weeks before admission there developed an aching pain across the abdomen which became progressively worse ; it was not increased by eating, nor was it relieved by vomiting. The vomiting bore no relation to food ; the vomitus was of a mucoid character. With the development of the abdominal pain she first noticed the presence of a lump in the abdomen, above the navel ; this was tender on pressure and had not increased in size since first it was noticed. For the last two weeks before admission she had pain across the back. Upon examination the patient was found emaciated, her mental state was good, her pupils and tongue in good condition. There was, with the pain across the back, some tenderness at the end of the sternum and along the costal margin on the right side. The tumour above mentioned was situated a hand's breadth above the navel and a little to the left of the middle line. It was the size of a small hen's egg, not very tender,

pulsative, movable laterally but not vertically. The liver and spleen seemed to be normal, as were also the lungs.

The pulse was regular (80), the radials not sclerosed. The apex was situated in the upper line at the 5th space, and there was a marked diffuse impulse extending from the upper border of the 4th rib, and from the left edge of the sternum to half an inch beyond the nipple line. With this there was a loud apical systolic murmer transmitted to the axilla and a faint murmur at the base. The urine was acid without albumen or sugar.

Upon August 17th Dr. Shepherd made an exploratory laparotomy and found a sessile pulsating tumour, smooth, retroperitoneal and close to the aorta. Upon turning the omentum and intestines to one side, the tumour could be seen and was recognized as an aneurysm of the superior mesenteric artery, of the size of a small hen's egg. Only about ¼ inch of artery of normal calibre intervened between the aorta and the aneurism. Pressure upon the aorta above readily arrested the pulsation of the tumour. The danger of gangrene of the intestines following any operative interference was so great that Dr. Shepherd decided to do nothing, and after irrigation and controlling bleeding points the wound was sutured with silkworm gut and dressed.

The patient recovered well from the operation, though she suffered so much abdominal pain that preparations of opium had to be given. On the 27th the wound was found to present excellent union and the stitches were removed. The pain continued and was most severe. She vomited several times, this condition being eventually relieved by sinapisms and cocaine. On Sept. 3rd there was more marked pulsation to the tumour, which had apparently increased in size. On the 10th her suffering was intense in spite of opiates and the tumour was certainly increased in size. On the 11th she died suddenly. The pallor and collapse pointed to hæmorrhage as the cause of death.

The necropsy was performed the same day by Dr. Finley and revealed :—Aneurism of the superior mesentric with rupture into the peritoneal cavity; aneurism of the right sub-clavian; dissecting aneurism of the abdominal aorta ; hypertrophy of the left ventricle, with chronic intestinal myocarditis ; early interstitial nephritis.

The heart was enlarged, weighing 350 grms.; the wall of the left ventricle greatly thickened, the anterior papillary muscle was transformed into a dense white fibroid mass, in which only a few muscle fibres were recognisable. The mitral valves were somewhat thickened and fibroid, the aortic segment normal. The right coronary artery

presented irregular areas of atheroma, the left was normal. There was no obstruction at any part of their course.

The root of the aorta was somewhat dilated, and at the junction of the ascending and transverse portions was a small area of gelatinous raised plaques. The descending aorta (as indicated in the figure) presented numerous similar plaques, without obvious calcification.

Upon the anterior wall of the right sub-clavian, just to the right of the trachea, was an aneurysmal mass as large as a hen's egg. On section this was found to be filled with laminated clot save for a small lumen with smooth walls.

A sacculated aneurysmal pouch of the front wall of the abdominal aorta was also present, as shown in the figure, situated at the level of the origin of the cœliac axis.

The orifice of the superior mesenteric artery was normal ; about an inch from the orifice it became dilated, forming a large mass lying behind the mesentery, pancreas and third part of the duodenum. These structures assisted to form the walls of a false aneurysm which was filled with a mass of recently clotted blood two inches thick.

There was a considerable amount of fluid blood free in the peritoneal cavity with some large clots. The blood had evidently escaped through a small rent to the right side of the mesentery. The abdominal viscera and the aorta were removed *en masse*.

The primary and, in this case, the only orifice of the dissecting aneurysm was situated 1.8 cm. ($\frac{3}{4}$ in.) above the origin of the cœliac axis. It was in the form of a transverse rent, 3 cm. across, with sharp, well defined edges, showing no definite marks of advanced sclerotic change save towards the right border of the lower edge, where the nodose sclerotic change at the border of the sacculated abdominal aneurysm continued into the edge, causing it to be somewhat thickened and rounded off. This old rent led into the dissecting sac, whose walls, in the immediate neighbourhood of the opening, were peculiarly smooth and glistening and undistinguishable in texture from the interior of the aorta proper. The sac passed at most 2 cm. in a downward direction, but upwards it continued as a channel 2.5 cm. across, running within the arterial coats along the right and posterior aspect of the vessel, and gradually narrowing. It passed up almost to the arch and there ended in a rounded smooth-walled cul-de-sac at the level of the bifurcation of the trachea. The walls of this upper portion, save in the immediate neighbourhood of the cul-de sac, were not so smooth as were those in the neighbourhood of the opening. They were slightly ragged, but on section so thick that the roughness evidently was due not to shreds of ruptured media, but to irregular organisations of a fibrinous layer lining the sac.

The cavity was filled with old mixed blood clot, fairly firm, but removable without difficulty.

Microscopical Examination.—Case I. The dissecting sac was seen to be within the layers of the middle coat throughout, save in the immediate neighbourhood of the orifices. Nevertheless, the extent to which the media formed portions of the outer and inner (arterial) wall of the sac varied very considerably. Thus in the upper abdominal and lower thoracic portion of the sac the blood evidently had penetrated almost through the media, and sections from these regions showed only a very slight external coating of the media, varying in thickness. In the common iliacs the passage ran through the middle of the media, there being about as much of the muscle left forming the wall of the main channel as was to be seen aiding in the formation of this outer wall of the sac. (Vide fig. 2.) Whereas as already stated in the right internal iliac, presumably close to the re-entering orifice, the main bulk of the media formed the outer coat, and but a few threads of muscular tissue intervened between the intima of the artery and the newly formed intima of the dissecting sac.

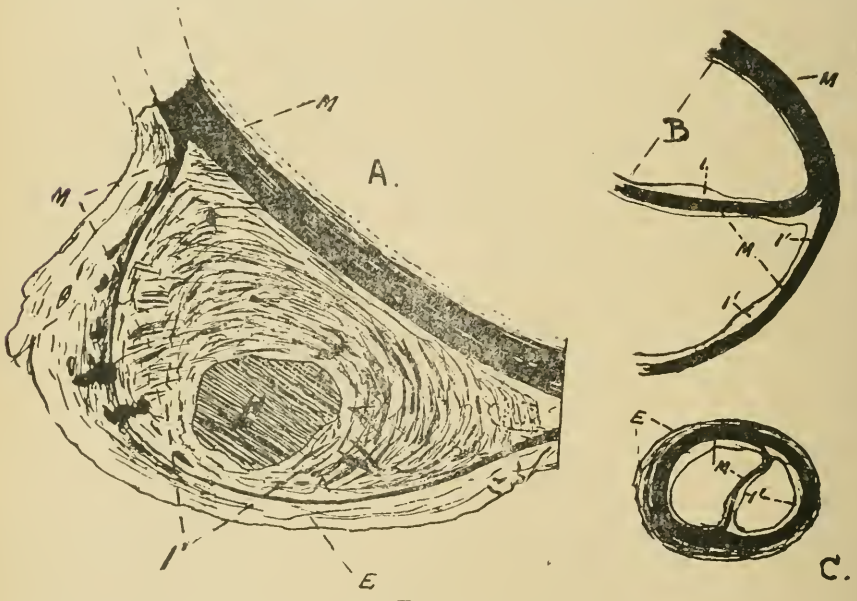

FIG. 2.

Sections from A, the thoracic aorta, above the seat of rupture; B, the right common iliac, and C, the right internal iliac artery, to exhibit the relationship of the middle coat to the dissecting aneurism.

The middle coat (M) throughout is figured in black. I, the intima. H, heart blood clot.

The sections also exhibit the new formed intima (I') of the dissecting channel.

(The figures are twice the natural size.]

Evidently, therefore, in the process of dissection—as has been recognized by previous observers—the blood does not confine itself to one layer of the media, but makes a path which while remaining within the media causes rupture and separation of successive layers.

Microscopical examination of the newly formed intima of the sac, revealed several points of interest. Below the primary rupture it was covered by a distinct endothelium, and in parts, both in thickness and structure, was scarce to be distinguished from true arterial intima. Elsewhere, however, it was very thick, and in such regions, and again more especially in the angle where the outer wall of the sac passed off from the inner—the angle of separation of the layers of the media—not only was it formed of superposed strands of fibroblasts and richly nucleated new fibrous tissue, but in addition it presented fairly numerous vessels. These could be seen most frequently in the newly formed intima of the outer wall of the sac, which in general was distinctly thicker than that lining the inner wall.

Above the primary rupture, the channel, as already stated, was filled with clot. Save for a central small channel filled with what was evidently post-mortem coagulum, the contents of the sac were undergoing organisation. In the more central part of the sac, around the aforesaid post-mortem clot—there could be recognised the deposit of fibrin in laminæ. In the more external areas, vessels were to be seen passing from the vascular adventitia through the thin layer of media into the clot, and organisation was proceeding apace.

A study of this series of sections appears to indicate the method of formation of the new intima of the sac. It would seem that as a consequence of the blood forcing its way through the layers of the media, the ruptured muscular walls of the sac become covered with a layer of coagulum, the thickness of this layer depending upon the rate of the blood stream as in other cases of coagulation *intra vitam*. Where the blood rapidly forces a re-entrance into the circulation and a current is swiftly established through the dissecting aneurysm, there the coating of fibrin remains relatively slight—save in the angles above mentioned, where the current being poor or wanting, the coagulation is considerable. Where, on the other hand, the dissection results only in the establishment of a cul-de-sac (as in the upward extension in this case) here after the first deposit of coagulum over the ruptured tissues, the fibrin is laid down in laminæ just as in ordinary sacculated true aneurysms.

There is, however, this difference between the dissecting and ordinary sacculated aneurysms, namely, that the act of dissection causes the coagulation to occur in a vascular tissue, not in a region (an

ordinary true aneurysmal sac) which, paradoxically, but, truly is non-vascular. And as a consequence of this difference vascularisation and organisation occur in the one case and not in the other.

Judged therefore from these sections, the development of the new intima is essentially due to the organisation of the layer of clot covering the ruptured tissue. I will not venture to state the origin of the endothelial covering of this intima. This may be by extension from the endothelium lining the aorta, but it may equally well originate *de novo* from modified fibroblasts. How endothelia originate is a matter concerning which we know little positively.

Case II. This specimen having being preserved in Sappey's fluid for some years, was in a condition ill-suited for microscopical research it was impossible to gain any nuclear stain, and only the shadow of cells could here and there be recognized. It was, however, possible to make out that the outer wall of the sac contained a relatively thick layer of media, while within this was a fairly thick layer of a laminated character, containing pigment granules and apparently fibrinous, though from the fact that it was peculiarly firmly adherent to the deeper structures, I cannot but conclude that organisation was already in progress. In short the case appears to exhibit a somewhat earlier stage of the condition found in the upward extension of the aneurysmal sac in Case I, exhibits, that is to say, an earlier stage of the arrested dissecting aneurysm that is undergoing repair by a process of deposit of laminated fibrin and organisation of the same.

(To be continued.)

ANGIOMA OF THE HEAD.[1]

(From the Surgical Clinic of the Montreal General Hospital.)

BY

GEO. E. ARMSTRONG, M.D.

Assistant Professor of Clinical Surgery, McGill University; Surgeon to the Montreal General Hospital; Attending Surgeon to the Western Hospital.

Wm. C., aged 30, was admitted to the Montreal General Hospital on February 17, 1896, for a tumour on the left side of the head. The trouble was first noticed about Christmas, 1895, *i. e.*, nearly eight weeks previous to admission, when his attention was directed to the prominence of the left temporal artery. Previous to that time it had never been noticeable.

About one week later he noticed a small tumour over the left temple and on the artery. It was a small soft lump, and during the week that followed its appearance it grew very slowly. He then worked very hard and got overheated, the head became hot and an intense headache came on. The head seemed as though about to burst and the pain was principally at the back. The severe pain lasted about one hour, but a dull headache continued for several days.

Following this overheating the tumour increased during the next three days almost to the dimensions it had on his admission. By that time it had reached almost to the middle line. Since then it has increased very slowly and has gradually become more prominent. No history of injury was obtained.

He stated that he was born and had always lived in Canada and followed farming; that when a child he had had scarlet fever, measles and croup; that he had had erysipelas ten years, and again five years previous to admission; that he had had no other illness and had always enjoyed good health; as regards his habits, that he had used tobacco freely, alcohol very moderately, and that he had had no venereal diseases.

Ever since he could remember he had been troubled with headaches, which would last two or three days at a time and then would not be felt for a week. Another fact he mentioned was that up till the time of his operation he had always been troubled with epistaxis, sometimes three or four times a day.

No information or points of interest were obtained on inquiry into the family history.

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[1] Read before the Montreal Medico-Chirurgical Society, April 3rd, 1896.

On admission his condition was that of a stout, intelligent, well-nourished man of 30 years, of florid complexion, and with a tumour situated on the anterior left part of the head. The left temporal artery was prominent and tortuous, pulsated visibly and extended up through the tumour. The longest measurement was from a point a little above the outer angle of the orbit one and a half inches upwards and backwards obliquely. In the middle line of the head the posterior border was nine inches from the nasion. The anterior border of the tumour extended forward only to the top of the forehead. Laterally it extended one and a half inches to the right of the median line, posteriorly to the line joining the external auditory meatus. Its general appearance was that of a large prominent tumour with tortuous margins. One saw and could feel well-marked pulsation over its whole surface. It was soft and yielded readily to pressure, which when removed showed the tumour to again fill out with each pulsation. Beneath the temporal and superior portions there seemed to be a complete absence of both tables of the skull. At the posterior part there was a detached portion of bone unconnected with the surrounding bone. This portion felt thin and friable and had very irregular, uneven margins. It was $6\frac{1}{2}$ cm. in its longest and 4 cm. in its shortest diameter.

Where the temporal artery coursed along the anterior border of the tumour was heard a well-marked bruit, having its maximum intensity over the temporal artery and occurring synchronously with the pulse. It could be best described as resembling the placental souffle.

The following observations, carefully made before operation, were verified by several present at the time :

(*a.*) Digital compression of the left common carotid caused the bruit to entirely disappear.

(*b.*) Digital compression of the left common carotid arrested pulsation of the temporal portion of the tumour and of the temporal artery, but did not arrest pulsation on the upper part of the tumour.

(*c.*) Digital compression of the right common carotid lessened but did not altogether arrest pulsation in the major part of the tumour.

(*d.*) Simultaneous digital compression of the right and left common carotids arrested completely pulsation all over the tumour.

(*e.*) Immediately after pressure was applied to the carotids the tumour visibly sank, and when the pressure was removed the tumour expanded.

Examination of the lymphatic system showed no enlargement of glands anywhere.

The respiratory and digestive systems were normal.

The pulse at the radial was regular, easily compressible, of good volume; the artery was slightly sclerosed.

Other than a slight reduplication of the second sound heard over the pulmonary cartilage, the heart was normal.

The urine was normal in quantity and colour, with an abundant flocculent precipitate at the bottom; specific gravity 1024, clear, contained no sugar; urea grs. x. to the ounce. On admission albumin was present in the proportion of three grammes to the litre. It gradually under a milk diet diminished to one gramme and remained at that amount. Microscopically the urinary sediment gave urates, pus cells, squamous epithelial cells and granular casts.

Examination of the eyes by Dr. John J. Gardner gave evidence of inequality of the pupils, the left being ½ mm. larger than the right. Both pupils reacted to light and accommodation, but the left not so readily as the right. The discs were about normal, but the arteries somewhat small. There was no fundus trouble.

On February 27th, *i.e.*, twelve days after admission, he was given ether and both external carotids were tied. At the operation several glands were seen and were removed. On examination by Dr. Wyatt Johnston they were found to contain only lymphoid tissue.

After the operation immediate and marked diminution in the bulk of the tumour occurred. Pulsation ceased and the bruit disappeared.

The following are taken from the bed-side notes of April 3rd: "The tumour has diminished in size and bulk; there is no pulsation or bruit; no further extension of absorption of bone has occurred in any direction; he does not suffer any longer from headaches or nose bleeding and says he feels a remarkable improvement in his general health.

CARCINOMA OF THE TONSIL[1]

BY

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A French carpenter, aged 59, was admitted to the Montreal General Hospital for a growth on the tonsil. He stated that the trouble began two months previous to admission, when he first noticed a pain on the right side of the throat on swallowing. Swallowing gradually became more difficult and the pain attending the act more severe up to about five weeks after the first onset of symptoms, when he noticed a small tumour beneath the angle of the jaw on the right side. Up till the time of admission to the hospital the tumour had increased very little in size from the time of its first appearance.

As a child and in adult life he had had no illness and for thirty-eight years had been a diver. Other than a bubo he had had no venereal diseases. He had always used alcohol in fair amount, but even up to the time of his admission had been a very heavy smoker.

Inquiry into the family history gave no history of carcinoma. His appearance was that of a fairly nourished, wiry Frenchman of 59 years, and his only complaints were the soreness on the right side of the throat on swallowing and the tumour on the neck.

Examination of the throat showed a tumour the size of a large marble growing from the right tonsil. It was hard and gristly, not tender or painful, freely movable in all directions. The right pillars of the fauces showed beginning infiltration.

There were two enlarged lymphatic glands on the right side of the neck.

The respiratory, vascular, digestive and urinary systems were normal.

He applied to Dr. H. S. Birkett in the out-door department. Dr. Birkett removed a small portion from the tonsil, which was submitted to Dr. Wyatt Johnston for a report. Dr. Johnston reported the growth to be an epithelioma.

A preliminary tracheotomy was performed on January 16, 1896, and five days later he was again anæsthetized and the tonsil, anterior pillar and a considerable portion of the base of the tongue on the right side were removed by a modification of Cheever's operation.

The external carotid artery was ligatured below the origin of the

[1] Read before the Montreal Medico-Chirurgical Society, February 7, 1896.

facial artery. During the succeeding stages of the operation there was very little hæmorrhage.

The posterior belly of the digastric and the stylo-hyoid and stylo-glossus were not divided, but pulled to one side, the superior constrictor of the pharynx opened and the tonsil thoroughly separated. Then with a gag in the mouth the anterior pillar, remaining attachments of the tonsil and a portion of the base of the tongue were divided by scissors and the whole removed in one piece. He made a good recovery.

This method of operating gave good access and was much less severe than either Czerny or Mikulicz's methods.

The prognosis in this case is not particularly good. Early recurrence has been the rule, but as in malignant disease elsewhere, early and thorough removal may, it is hoped, give better results in the future.

NOTES FROM
A
DEBATABLE CASE OF HODGKIN'S DISEASE.[1]

BY

A. E. Vipond, M.D.

Physician to the Montreal Dispensary,

and

C. F. Martin, B.A., M.D.

Assistant Physician, Royal Victoria Hospital.

Although cases of Hodgkin's disease are, as a rule, not difficult of diagnosis, there occur at times instances where the peculiarity of the blood conditions renders it not only difficult, but even impossible to determine the differentiation between that disease and true leuchæmia. Our report concerns one such case, which further presented other features, rendering the condition worthy of special mention before this Society.

One of us (V.) was called about the middle of November last to see a young Frenchman who complained of cough accompanied by headache, of deafness, painful swelling of the left arm and "lumps" on various parts of the body.

He was a Canadian, 21 years old, of good habits, and accustomed to light work. He had a previous history of some early "cerebral" disease in which he lost his eyesight and had been partially blind since the age of four years. He had never had malaria and gave no history of specific disease.

There was a family history of tuberculosis.

His present illness had commenced less than two months previously and was supposed to have followed some infection of the lips from playing on a friend's flageolet. His lips became swollen and painful, and shortly afterwards the lymph glands about the neck became enlarged. Rapidly the axillary and inguinal glands became swollen and the patient suffered pain in both thighs. This condition was accompanied by epistaxis, progressive anæmia and asthenia, slight dyspnœa, and about four weeks after the onset of the symptoms orthopnœa supervened.

On November 24th his left arm began to swell, and as his condition became grave he was sent to the Royal Victoria Hospital, where his

[1] Read before the Montreal Medico-Chirurgical Society, January 23, 1896.

condition was noted as follows. (We are indebted to Dr. A. A. Robertson for careful records of the case, from which we abstract these notes):

Patient is a young man, anæmic and very weak. He has a slight cough with dyspnœa, sometimes orthopnœa. He has headache, and pain in the left arm. Temperature $101\frac{4}{5}^{\circ}$, pulse 126, respiration 32.

The lymph glands all over the body are much enlarged, fairly movable, painless and without signs of suppuration. There is slight tenderness over the sternum. There is also general anasarca, with marked œdema, especially in the left arm and hand.

The heart presents evidence of some dilatation, with a systolic murmur at the apex.

There is no disease apparent in the lungs.

Over the upper half of the sternum and right half of the pericardial area there is definite dulness merging into the cardiac dulness, due evidently to enlarged retro-sternal glands.

The alimentary tract shows enlarged tonsils, coated tongue, some digestive disturbances, but no diarrhœa. The liver and spleen are palpable to a slight extent below the costal margin. The urine has an excess of uric acid, but is otherwise normal.

Examination of the blood by various methods showed red cells 1,131,000, white 24,000, hæmoglobin 21 per cent. The leucocytosis was mainly lymphocytic (76 per cent.) The stained specimens further showed a large number of nucleated red cells, these nuclei often being broken up and showing a condition sometimes resembling mitosis. The polynuclear neutrophiles showed a similar process of cell division. A number of free nuclei were present and but very few eosinophile cells.

Examination of the eyes by Dr. Buller revealed a retinitis pigmentosa, with some appearances of a recent change in the disc, and also what seemed like retinal hæmorrhages, though the patient's condition precluded the possibility of a satisfactory examination.

The patient was treated by hypodermic injections of liq. sodii arsenitis, and for some weeks showed marked improvement. During this interval, however, a few other enlargements occurred, notably over the forehead, subcutaneously.

His blood condition varied inappreciably from week to week, and the proportion of white to red cells varied within narrow limits of 1–50 to 1–75 or 1–100. The red cells remained between one and two millions.

Towards the end of December his condition again became worse and he suffered from numerous hæmorrhages, chiefly from the nose.

One of these attacks was markedly prolonged, and shortly after it the patient died, about ten or twelve weeks from the onset of the symptoms.

A complete autopsy was permitted, and the following main conditions were observed: General enlargement of all the glands, both superficial and deep; in many of them hæmorrhages had occurred. The spleen was but slightly enlarged, the kidneys dense and firm from the presence of numerous lymphomata. In the stomach, liver and intestines there were some evidences of over-growth of lymphoid tissue. On the inner surface of the dura mater, beneath the skin of the forehead, and even in the calvarium, there were multiple heteroplastic lymphoid tumours, many of them being as large as a filbert or even walnut. The bone marrow was distinctly pale.

While we are unable as yet to give a complete report on the case, as our investigations are incomplete, we cannot but conclude that the conditions found bring into very close relationship the lympho-sarcomata and some cases of lymphatic leuchæmia. The blood condition, with its numerous nucleated red cells, its leucocytosis of lymphocytes, renders the case extraordinarily like leuchæmia, while the tumours found in various portions of the cranium and other unusual sites give to the case all the characters of a lympho-sarcoma.

It may, perhaps, be classed among the cases recorded by Fraenkel as instances of acute lymphatic leuchæmia, and in favour of this view are to be mentioned the sudden onset and early appearance of such symptoms as hæmorrhage, etc. The case, however, is more than suggestive of the intimate relationship between cases of lymphatic leuchæmia and those of Hodgkin's disease, and it would amply bear out the ideas conveyed by some authors already as to the existence of this interesting relationship.

AORTIC ANEURISM.[1]

BY

A. E. Orr, M.D.

Physician to the Montreal Dispensary.

Wm. H., barber, married, complains of cough, dyspnœa and swelling on front of chest.

Family History—Good so far as known; no history of aneurism, gout or phthisis.

Personal History—Born in England, where he was a military bandman, playing on a wind instrument. He came to Canada in 1883 and became a bandmaster and was also employed in a lumber mill, where he had to do much heavy lifting. He denied venereal disease. At the age of 20 he had an attack of cholera (cholera nostras ?); a slight attack of rheumatism at 22. Except these illnesses he was well and strong until the autumn of 1883, when he had an attack of sharp pains up the right side of the neck and down the right arm. He had at the same time a slight dry cough. After a few weeks the cough ceased and the pain leaving the right appeared in the left side of the neck, being of dull aching character, usually constant, but with occasional remissions of a day or a few days and continuing five or six months. In the spring and summer of 1885 he felt pain of an aching character in the upper part of the sternum, but not of sufficient intensity to cause him to give up work or to lose sleep.

In December, 1885, a little over one year from the first appearance of pain, he first noticed a pulsating swelling in the upper part of the chest. Up to that time he had had little or no dyspnœa. The cough had disappeared and the voice was not noticeably altered. The pains in the side had disappeared after lasting nearly a year.

On the 9th of December, by the advice of his physician, he went to the Montreal General Hospital, where he remained about three months with great benefit. He was given Pot. iodid. gr. x., t.i.d., with absolute rest in bed and nourishing diet. The size of the tumour diminished and pulsations ceased.

After returning to his home he was forced by the necessity of earning a living for his family to resume his work in the lumber mill, but after a few months was forced to desist by the recurrence of the pulsation in the tumour. He was then treated at home with Pot.

[1] Read before the Montreal Medico-Chirurgical Society, April 3rd, 1896.

iodid. gr. x. t.i.d. and rest in bed, but the treatment could not be very efficiently carried out on account of restlessness and refusal to maintain the recumbent position. However, the tumour again diminished, and he commenced work as a barber, eking out a subsistence by performing the duties of sexton and bell-ringer.

During 1887 his voice became hoarse and he suffered a great deal from dyspnœa. In the winter of 1887-88 he suffered from a harsh dry cough. In the spring he was exposed to a thorough drenching and chilling and the cough became much worse and was attended with profuse but difficult expectoration.

When he came under my care in July, 1888, the cough was no better and was of a harsh, brassy character. There was great dyspnœa on exertion. He was a man of average height and fairly well developed, but much emaciated and looked very ill. The swelling was larger than ever before and was a rounded, visibly pulsating elevation situated in the upper sternal region somewhat to the right side, dull on percussion over the tumour, and for about half an inch outside, making a dull area of about two and three-quarter inches diameter. The pulsation was expansile, with double shock and systolic thrill. There was a soft systolic murmur over the tumour, most distinct near its right border, audible outwards to the outer third of the clavicle and of varying intensity : the first heart sound was not much altered, second sound unusually sharp and distinct. The apex beat was between the fifth and sixth ribs, half an inch inside the nipple line. The veins of front of chest were not enlarged. Tracheal tugging well marked ; no inequality of pupils or pulse. There was no dulness except about the tumour. Sonorous and cooing râles audible over both lungs. Air seemed to enter both lungs equally. The radials were not sclerosed. No sugar or albumen in urine. He was ordered the iodide and rest treatment again.

October 18th.—The cough has been getting worse and there are medium-sized moist sounds or crepitations over both lungs, especially at the bases.

October 21st.—He had a suffocative attack about 3 a.m., with pulse of 160 and very weak. He was promptly relieved by bleeding to six ounces, after sinapisms, stimulants and posture had failed. He rallied and felt fairly comfortable for a few hours, but urgent dyspnœa soon returned, with great acceleration of pulse and respirations ; the lungs showing filling of the smaller tubes with liquid, and he died next day.

The post-mortem was performed hurriedly at midnight, circumstances making it impossible to secure a more suitable time or more favourable surroundings. Permission could be obtained to examine the tumour only.

AN INSTANCE OF APPENDIX VERMIFORMIS ONLY PARTIALLY COVERED BY THE PERITONEUM.

BY

ARCH'D E. MALLOCH, M.D., Hamilton.

On the 23rd of April, with Drs. Mullin and Olmsted present, I made a post-mortem examination on M. L., æt. 73, and, having a case of relapsing appendicitis for operation the next day, special attention was directed to the appendix.

In a discussion on the surgical treatment of typhlitis reported in the *British Medical Journal*, November 8, 1889, F. Treves remarks that "Inasmuch as the cæcum and appendix are entirely covered by serous membrane, a perforation in either of these organs can not lead to suppuration of the connective tissue of the iliac fossa," and as this view is generally held, it might not be amiss to note an exception to the rule. The vermiform appendix was not more than three inches long and started from the cæcum very close to the termination of the ileum; its direction was downwards towards Poupart's ligament; its upper half, lying on the cæcum, was covered anteriorly and at the sides with peritoneum; its lower half lay wholly behind the peritoneum imbedded in a mass of fat; there was no mesentery. The lower layer of the peritoneum from the mesentery of the ileum passed over the upper half of the appendix, covering fully two-thirds of its surface, and then passed downwards over the mass of fat, in which the lower half of the appendix was imbedded. The peritoneum over this mass of fat had to be cut through to expose the lower half of the appendix. There was no sign of old inflammatory action, the peritoneum having a perfectly normal appearance.

Kelynack[1] found that out of 80 cases the mesentery extended to the tip of the vermiform appendix in 64, that is to say, in more than two-thirds of the cases. If now such a mesentery were shortened, or to state it otherwise, if the peritoneum here instead of being long enough to form a mesentery resembled that covering the ascending colon, and only covered the anterior aspect of the appendix, we should then obtain the simplest form of retro-peritoneal position of the organ. Kelynack, who has published a very full study of the

[1] Pathology of the Vermiform Appendix. London, 1893, p. 31.

anatomy and pathology of the appendix, would seem never to have met with such a condition as is here indicated, but Ferguson,[1] of Toronto, in an analysis of 200 dissections, while he does not indicate that he has ever met with the complete form of retroperitoneal appendix, evidently found frequently a condition in which the appendix was not covered by peritoneum throughout the whole of its course, for he states that in 77 cases "the appendix was so placed and covered by peritoneum that its perforation would open into the sub-peritoneal tissue and establish a diffuse form of cellulitis. He records one case of a man about forty, who had a discharging sinus "in the situation of a psoas abscess," and died from an acute attack of pneumonia. On making a careful dissection of the sinus, it was traced to a perforated appendix "that lay behind the peritoneum."

It would almost seem that the majority of those who have studied the anatomy of the appendix have observed the peritoneal relationships of the free end, but have not sufficiently regarded the relationships of the proximal portion where there is the greatest likelihood of finding the appendix incompletely surrounded with peritoneum.

[1] American Journal of Med. Sc., N.S. CI., 1891, p. 61.

CASE OF EXOSTOSIS BURSATA.[1]

BY

W. Gordon M. Byers, M.D.,

House Surgeon, Montreal General Hospital.

Thos. S., aged 45, a well-nourished storeman, of temperate, industrious habits, was admitted into the Montreal General Hospital, under Dr. F. J. Shepherd, on June 5th, 1895, complaining of a "lump in the back."

A month previous to his entrance into the hospital, the patient, while carrying a basketful of fish up the gang-plank of the SS. Vancouver, slipped and fell on his back ; and experienced, as a result, on getting up, slight pain in the region of the left shoulder blade. The following morning he went to work as usual, but the shoulder "ached" and "caught" him whenever he attempted to lift anything, and "seemed out of joint," when putting on or off his coat. About a week after the fall, the patient felt, on leaning against his chair, a small hard lump in the region of the left shoulder blade, which became more perceptible later on. The presence of this growth, together with an increase in the severity of the symptoms mentioned above led him to seek medical advice.

Examination.—A hard somewhat nodular tumour was found situated on the vertebral border of the left scapula, one and one-half inches from its inferior angle. In size it approached a walnut or bantam's egg, and caused a distinctly visible prominence at the point mentioned above. It appeared to be firmly attached to the scapula, inasmuch as it participated in all the movements of that bone ; but remained immobile when the shoulder blade was fixed. It glided smoothly over the surface of the ribs. On firm pressure a crackling, crepitus-like sensation was produced ; at these times also the soreness was marked.

On June 10th, 1895, Dr. Shepherd made a vertical incision over the prominence, and having torn through the intervening muscles in the direction of their fibres, came upon a large, smooth, slippery sac, which, when cut into, was found to contain a small quantity of jelly-like substance, and to envelop a hard, glistening, white mass. This growth having been partly sawn through and then chiselled away, was found to consist of a more or less rounded tuberculated head

[1] Read in abstract before the Montreal Medico-Chirurgical Society, June 14, 1895.

about one inch in diameter ; a shaft two inches in length, of a somewhat smaller calibre, and a broader and somewhat flattened base, which was attached to the under surface of the scapula, a thin plate of which came away in its removal. On section, the exostosis was found to consist of spongy bony tissue, the head being surrounded by a layer of cartilage which caused the shiny, glistening-white appearance. No free cartilaginous bodies, such as occurred in the cases reported by Fehleisin and Dr. James Bell, were present in this instance. Following the removal of the growth, the greater part of the surrounding sac, which extended well under the ventral surface of the scapula, was dissected out and cut away.

The patient's after-progress was without mishap and his recovery perfect.

This case of " Exostosis Bursata " is interesting, not so much on account of the extreme rarity of the condition (two or three other examples having been brought before the notice of the Montreal Medico-Chirurgical Society) as for the light which it throws on the origin and development of these curious growths.

Two main views are held in regard to their etiology.

(*a.*) That they originate as out-growths from the intra-articular cartilaginous structures, which push in front of them a portion of the lining membrane of the joint as they develop. At length, however, there comes a stage when they become separated from the joint and then differentiate into these exostoses.

(*b.*) The second view is the well known " cell-inclusion" theory of Enaheim. According to this explanation, cells having a tendency to produce joint-structures became in every fœtal life misplaced and " included " among cells having a more or less different life work. Here for a time they remain quiescent ; but at last a period comes—generally after the active growth of the body has ceased—when they take on new life and develop into tense exostosis bursata.

The situation of the growth in this instance, quite apart from any joint, and in close relationship with the growing epiphysis near the vertebral border of the scapula is strong proof in favor of the latter of these two views.

Ephemerides, 1895.

By William Osler, M.D.

XI. Is the Coin Sound Distinctive of Pneumothorax?

I have always believed that the *bruit d'airain* of Trousseau was never heard except in pneumothorax. I have often examined for it in very large excavations without ever noting its presence. In the first edition of my "Text-book of Medicine" I stated with reference to the diagnosis of pneumothorax that "In those rare instances of total excavation of one lung the amphoric and metallic phenomena may be most intense, but the absence of dislocation of the organs and of the succussion splash of the coin sound suffice to differentiate this condition. Why the coin sound is not heard it is difficult to determine, unless its production is connected in some way with a certain degree of air-tension, which is not present in a vomica, however large."

The following case led me to change this opinion:

Henry S., aged 57, seen July 11th, presented all the signs of chronic pulmonary tuberculosis, which, according to his statements, had lasted for seven years. On the 12th the condition noted was as follows: The patient is propped up in bed, breathing at 48 per minute. He is a small-framed man, much emaciated. The sterno-cleido-mastoid muscles stood out prominently, having between them a deep episternal notch, and the clavicular spaces are deep. The left side expands more than the right. There is a well marked cracked-pot sound at the right infra-clavicular region, with impaired resonance in the first and second spaces. In the axilla the note is fairly good. On auscultation there is at the right apex pure amphoric breathing, with occasional metallic rales after coughing, as low as the second rib. Below this the breath sounds are somewhat enfeebled with prolonged expiration. Over the dull areas in the axilla and the right back breathing is tubular and there is a loud to and fro friction rub. At first I regarded the case as one of large cavity at the right apex. There was a note that the coin sound was tested for on this day and not noted.

He remained in very much the same condition through the summer.

On my return Dr. Thayer called my attention to the remarkable character of the ausculatory signs at the right apex. The note above the fourth rib had a somewhat wooden, tympanitic quality, and the breath sounds here were purely amphoric. From this point into the

axilla there was tubular breathing. Behind, the amphoric signs were present from the apex nearly to the angle of the scapula. The breath sounds were loud and amphoric in quality. Dr. Thayer called my attention to the loud and ringing character of the coin sound, which he regarded as produced in a very large excavation. I must confess that I rather leaned to the opinion that a localized pneumothorax had developed.

The note I made early in November was as follows: Listening in the second interspace in front, while someone taps in the mid-scapular region behind, the coin sound is heard with great intensity, and the amphoric quality of the breath sounds and of the rales is of exquisite grade.

The following are extracts from the autopsy note: The right lung is firmly adherent anteriorly. The anterior margin is 4·5 cm. from the edge of the sternum. The adhesions between the lung and the parietal pleura are very strong, and over the upper lobe the pleura is greatly thickened. A large part of the upper lobe is occupied by a cavity, the walls of which average, including the pleura, 4 mm. in thickness. The walls are covered with granulation tissue and present here and there papillary projections, which on section contain remnants of branches of the vessels and bronchi.

XII. Head-swaying in Children.

Among the curious co-ordinate movements in children, head-nodding and head-banging are among the most interesting. [1]

The following case presents an interesting condition, which I do not remember to have seen described, in which the head is swayed from side to side in a rhythmical manner:

E. C., female, aged five, third child; always healthy; when born was not a blue baby, and instruments were not used. Developed naturally and had no trouble with teething. Both mental and bodily growth were normal, and she is now a well-nourished, healthy-looking child, very bright and intelligent.

She is an Hebrew, and many members of the family are excitable and nervous. The parents are bright, intelligent people.

From the time the child sat up it was noticed that she moved the head from side to side, or dropped it on the shoulder, and this habit has persisted. The father states that it was noticed from the very earliest infancy. She never has had any other movements; never any rotation of the head, or head-nodding, or any twitching of the

[1] I have given a brief statement of the different forms of these co-ordinated movements in my *Chorea and Choreiform Affections*. Blakiston & Co. 1894.

muscles of the face or of the arms. She is not a mouth-breather, and she sleeps quietly. At times, however, she is very restless and gets on her hands and knees in her sleep and bores her head into the pillows and climbs up until she knocks her head against the foot of the bed, as her father says, "rooting about like a pig." She never has had spasms, and has been a very healthy child in every respect.

Present Condition.—A very well-grown child for five years; heathy looking, with a bright, intelligent face and well-shaped head. She has no squint, no nystagmus; the pupils are equal and react to light. The tongue is clean, the palate well formed; the tonsils are a little enlarged. There are no movements of the face or of the hands; at times she is a little nervous with her hands, but as a rule there is nothing whatever noticeable, and it is really only when her attention is not called to it that she begins the swaying.

When first seen there was nothing to attract attention, and while taking the history no movements were noticed. Her father said that for a couple of years, so long as her attention was directed to it, she would refrain; thus coming in the long railway journey yesterday, knowing that she was coming to see me, she did not make any movements whatever. If, however, her attention was diverted by anything the movements would at once begin. I sent her into an inner room to watch the type-writing machine, and in a position at which I could readily see her. In a few moments she began swaying the head from side to side, at the rate of a little more than sixty movements in the minute. The excursion from the middle line is about a foot. There was no rotation, and there was no jerking character to the movements, but a rhythmical, swaying motion. When she became a little excited the movements were rather more rapid; thus I counted 47 in 40 seconds, and then the shoulders participated slightly. The father says that sometimes the body will sway with the head.

In every other respect the child seems perfectly natural.

RETROSPECT

OF

CURRENT LITERATURE.

Medicine.

Pernicious Anæmia.

WILLIAM HUNTER. "The pathology of pernicious anæmia."—*British Medical Journal*, February 8, 1896.

In the August (1895) number of this Journal we reviewed the article by Ralph Stockman on this very interesting subject. One of the authorities whom Stockman quoted and with whom he could not agree is Dr. Hunter, whose views are presented in this article now under consideration, which is all the more interesting, since, while presenting his own views, he takes special exception to those of Stockman, already herein recorded (MONTREAL MEDICAL JOURNAL, August 1895).

The first part of the paper sets forth the grounds on which Hunter believes this form of anæmia differs from anæmia due to loss of blood or from the anæmia of wasting disease. They are as follows:

1. The extreme degree of blood change which pernicious anæmia invariably presents is always marked by certain pathological changes, characteristic either as regards their nature, their degree or their peculiar association. These changes are constantly met with in the liver and not infrequently in the kidneys and spleen.

2. These changes according to my observations are characteristically absent in traumatic anæmia and in wasting anæmia.

3. They consist for the most part of deposits of blood pigment, with corresponding increased richness in iron in the liver, etc.

4. The pigment is not the result of extravasation.

5. From its character and from its amount it denotes an excessive destruction of blood as the prominent and most constant and characteristic feature of the disease.

While recognizing the hæmolytic nature of this disease the writer believes that the destructive process takes place within the area of the portal circulation—notably within the spleen—and since the destruction is confined to the portal circulation he argues that in

pernicious anæmia the source of the poison which injures the blood is the gastro-intestinal tract.

Having thus presented his own views he goes on to discuss those of Stockman. The criticism on Stockman s view as to the essential cause he divides into two: (1) Do extravasations occur with the frequency or to the extent which he assumed? (2) Can the typical pigment changes found in the liver, spleen and kidney in pernicious anæmia be caused by the absorption of extravasated blood?

The first question he answers in the light of his own personal experience, and by that concludes that they are neither of the frequency or importance that such a theory presupposes.

The second question he also answers in the negative, basing his conclusions on experiments made on rabbits. He transfused the blood of one rabbit into the peritoneum of another, in several cases without defibrination and then again after defibrination. The health of the animals was generally maintained. The post-mortem changes failed to reveal the pigmentation in the liver so characteristic of pernicious anæmia. On the whole the process of taking up this abnormal amount of transfused blood was done in a normal way and gave normal findings. From this Dr. Hunter concludes that the extravasation theory is not tenable.

It appears that further comparison of these two observations might be profitable.

The experiments performed by Hunter were done on healthy animals. Stockman always speaks of the already "debilitated" subject. Again, more blood was added to the already full-blooded rabbit; in Stockman's experiments he bled the animal into its own tissues, and those cases cited as occurring in the human species where large hæmorrhages were present were cases in which poor health was a feature, or accident, which terminated life, had occurred.

These points, it would seem, suggest a difference in methods of such magnitude as to render exclusive conclusions quite impossible.

Further, the report of Stockman's experiments, as seen in the *British Medical Journal*, does not contain any statement that "an increase of pigment in the liver can be produced by *injecting blood subcutaneously* into rabbits." What is recorded, however, is, ' After an internal hæmorrhage there is found an excess of iron in the liver, spleen, etc. This is readily enough shown by experiments on animals, of which one may be quoted: A rabbit during ten days had four *subcutaneous bleedings made*, etc."

Hunter regards pernicious anæmia as a specific form of gastro-intestinal anæmia, and this whole view is based upon the facts which

establish, according to him, that an excessive blood destruction, initiated within the portal area, is the characteristic feature of this disease, and that this destruction differs from all other forms of hæmolysis.

What the specific factor in the causation of this disease is, is not yet decided. He suggests the "presence under certain favourable conditions of organisms of specific nature within the gastro-intestinal tract"—a specific form of gastro-intestinal infection.

Tubercular Meningitis in Ending Recovery.

Janssen, of Mastricht (Holland.) "Uber einen Fall von Meninigitis tuberculosa mit Ausgang in Heilung."—*Deutsche Medicinische Wochenschrift, März* 12, 1896.

All teaching, or nearly all, concerning the prognosis in this disease has been pretty unanimous in regarding recovery as the rarest event in the course of this form of meningitis, and when such did occur, reasonable doubt was thus cast upon the diagnosis.

While recent observations on the subject have not served to alter the prognosis to any considerable extent, yet the notes which the above mentioned writer has given must lead to a little more reserve on the part of some teachers in pædiatrics and writers of text-books, in their prognostic teaching. Though thoroughly in accord with those who choose to doubt the correctness of the diagnosis in many cases of "healed tuberculous meningitis," he nevertheless concludes from anatomical evidences, given in those cases which he cites from the literature on the subject and from those manifest in the case which he presents, that tuberculous meningitis may and does end in recovery. The authorities quoted offer together but eight cases which resulted favourably, the clinical diagnosis being confirmed by anatomical findings years after, death being due to recurrence of meningitis or perhaps tuberculous disease in other parts. Among those quoted are Rilliet, Politzer, Carrington, Biedert, Schwalbe and Leube.

The points in the case which Janssen presents may be briefly summarized.

A corporal, nineteen years of age, was taken ill with what was regarded as tubercular meningitis in May of 1892. The course of the illness, with the exception of its termination, confirmed the diagnosis —the disease evidently confined to the brain and its membranes.

In June of the same year he was allowed to leave the hospital and he resumed the duties of his office in the Infantry. However, his full strength never returned and he was subject to attacks of laryngitis and bronchitis at changes of the weather. Three years after, April,

1895, he again fell ill, but at this time with signs of disease in the lungs, which, rapidly developing, terminated in death in August.

The autopsy showed signs of meningitis, both at the convexity and base of the brain, with minute tubercles and intimate adhesions between pia mater, arachnoid and surface of the brain. No tubercle bacilli could be demonstrated. The firmness of the adhesions, the degenerated condition of portions of the products of this change, as well as the failure to find the bacilli, indicate the long standing and practically healed meningitis. While death was due to pulmonary tuberculosis, the brain condition found, abundantly confirmed the diagnosis of tuberculous meningitis with recovery, made three years before.

A word concerning the treatment adopted by Dr. Janssen in this case. It consisted in ice to the head, poultices over the whole of the body to the neck, leeches to the nose, and large doses of potassium iodide, as high as 600 grains daily.

Prognosis in Phthisis.

James E. Pollock. "Prognosis in Phthisis."—*The Practitioner*, April, 1896.

In a lecture delivered at the Hospital for Consumption, Brompton, early in this year, Dr. Pollock reviews the subject of phthisis from the prognostic standpoint and presents several points which, with advantage, may be briefly summarized here.

The progress of phthisis is influenced by two great classes of factors, viz. : (1) General ; (2) individual.

Under the class of general influences, he enumerates age, sex and heredity. The fatal age of phthisis is between twenty and thirty. After forty the cases are slow.

Male cases are generally longer than female cases. Those cases in which heredity plays a part occur early and terminate sooner, and again there is generally a uniform type of pulmonary tuberculosis among those upon whom the same hereditary influence acts.

The most important factors, however, are the local or individual factors. Under this heading he first discusses the subject of cavity formation and fibrous changes. The disease thus limited locally tends to great chronicity, and not only such cases, but even those presenting diffuse deposit of tubercle in the lung belong to the class of slowly progressing cases.

In such cases, of which the lecturer has observed upwards of 140, the deposit is unilateral, and the patients present none of the typical signs of the chest of phthisis in its movements and measurements.

They waste moderately and the temperature is usually low. The lung shows on examination the superficial situation of the tubercles and inflammatory exudations are wanting.

A third form of this disease, tending to run a prolonged course, is the basic form.

Among other prognostic elements, denoting unfavourable course, are continued high temperature as measure of lung irritation, with progressive waste and hæmoptysis.

Further, as favourable elements in prognosis are pauses in the disease, by change of the moist to the dry crepitation, with lower temperature and increase in flesh, and when such occur the time for change of climate has arrived, if it be otherwise indicated.

From 300 tabulated cases, Dr. Pollock shows that in cavity formation, in emphysematous lungs and in those with chronic diffuse deposit, the progress is slow, while cases with digital clubbing or cretaceous expectoration or fistula, belong also to the class of chronic phthisis, though generally terminating earlier than those of the first mentioned types.

Enteroptosis and Its Treatment.

C. SCHWERDT, of Gotha. "Enteroptose und intraabdominaler Druck." *Deutsche Medicinische Wochenschrift*, Nos. 4, 5 and 6, 1896.

MEINERT, of Dresden. "Ueber normale und pathologische Lage des Menschlichen Magens und ihren Nachweis."—*Centralblatt für Innere Medicin*, March 21 and 28, 1896.

FREDERICK TREVES. "The treatment of Glenard's disease by abdominal section."—*British Medical Journal*, Jan. 4, 1896.

Schwerdt's two main points in speaking of this disease are: (1.) That it is a constitutional disease, and (2) that it is due to diminished intra-abdominal pressure.

I. *It is a Constitutional Disease.*—Glenard was the first to describe this disease in 1885. He used the term to denote the sinking of the intestines, and apparently did not include the liver, kidney or spleen in his description. Ewald in 1890, with other observers, gave the term a broader meaning, making it to include a sinking of all the abdominal organs. Schwerdt, on a symptomatic and therapeutic basis, believes he is justified in speaking of enteroptosis in all cases where at least two of the abdominal organs are in a condition of ptosis, since the complaints and therapy in minor and major cases alike are so much the same.

With the term thus qualified, he describes numerous observations

during 1895. Of 95 cases which he reported, 89 were in women and 6 in men.

In 69 cases the stomach was displaced and atonic, while in 86 cases the right kidney was movable. In writing of the kidney in this condition he speaks of three classes :

1. The kidney palpable at its lower end.

II. The kidney palpable over its lower half.

III. The wandering kidney.

The liver and spleen play but a rare part in this condition, though a few cases have been reported in which the liver was displaced or rotated on its horizontal axis ; while the displacements of the spleen are yet much rarer.

What are the clinical features of this disease ? Upon this point most writers are agreed.

Prominent in the picture of this yet rarely recognized condition are the dyspeptic symptoms, sense of fulness in epigastrium, nausea, eructations, vomiting, obstinate constipation, abdominal distension, colic, and in more marked cases pain in the back, polyuria, and often in cases yet further advanced pain in diaphragm, palpitation, dyspnœa, sleeplessness, mental depression, melancholia,—a clinical picture so often spoken of as " purely functional" or " neurasthenic," but which may be referred, with some show of reason according to the observers mentioned above, to a condition of " anatomical changes" *existing* and *demonstrable.*

The essential element productive of this dislocation is, in the mind of Schwerdt, a lessened *intra-abdominal pressure* which has its origin in a lax atonic anterior abdominal wall. Such a condition exposes the hollow organs, otherwise supported, to the influence of gravity when filled with their normal contents, and one part after the other tends to fall, pulling other parts with it.

The ordinary movements of the body, and the accidental ones which occur, tend to aggravate the condition.

Peristaltic activity being lessened, products of decomposition act upon the mucous membranes or upon the general system after the manner of " auto-intoxication," producing many nervous manifestations.

In his discussion of the ætiology Dr. Schwerdt says that the essence of the disease is to be sought for in the atonic and enervated condition of the nervous system. Active as causes of the condition he enumerates :

1. Heredity.

2. Methods of living.

3. All chronic diseases.

4. The corset.

5. Insufficient care during pregnancy and after.

From this the conclusion is drawn that it is purely a constitutional disease.

The effects of splanchno-ptosis or enteroptosis are sometimes manifest in a peculiar unnatural form of dyspnœa,—deep inspiratory movement, which Dr. Schwerdt regards as due to the change of thoracic processes following on altered intra-abdominal pressure.

An unusually lax and atonic scrotum with dependent testicles is also suggestive of a corresponding condition of the organs internally.

The author *en passant* touches briefly on the subject of chlorosis, tuberculosis and hysteria in connection with enteroptosis.

Chlorosis occurred 25 times in the 95 cases.

That chlorosis may develop out of enteroptosis he holds as not unlikely, since the condition in the intestinal tract favors *auto-intoxication.*

In 15 cases, Dr. Schwerdt reports pulmonary disease. It is thought that the treatment, especially feeding, in pulmonary tuberculosis has much to do in causing this dislocation of organs.

The already relaxed abdominal organs are overloaded.

In 12 cases hysteria was found. Many cases suggest the existence of hysteria, but it is necessary to establish a diagnosis of such by other signs and symptoms.

II. *The diminished intra-abdominal pressure is the first and most important symptom of enteroptosis.*—The demonstration of the alteration of pressure has been made in many instances and sufficiently uniform results obtained warranting the above conclusions.

A description of the method adopted and a detailed account of results would take up too much space in this retrospect.

Four forms of intra-abdominal pressure are found to exist :

1. That due to tonicity of abdominal wall.

2. That due to tone of walls of the hollow organs.

3. The communicated pressure, greatest in lower part of the abdominal cavity, as in pregnancy, and in abdominal tumours.

4. The inflation tension, in ileus, etc.

The latter alone is distinctly pathological, while the other three may become so altered as to be so considered. From these observations Dr. Schwerdt lays down the principles of treatment. He deals with *prevention*, which should begin with the habits of the child, and especially the form of dress, in discussing which *corsets* are strongly forbidden. The period of pregnancy, so active as a cause in this disease, is to be carefully supervised.

When the nervous symptoms predominate, let these be treated—all forms of toxic measures—and protection against depressing influences of cold, in the northerly winter climate, is recommended. Of highest importance are those measures which are adapted for the purpose of directly raising the *constantly diminished intra-abdominal pressure.*

Massage and faradisation are of great use and much advantage may be gained from the use of the corset properly adjusted or a neatly fitting abdominal binder applied only so long as to enable the patient to go out into the fresh air and when partially restored in this way such supports should be discontinued, as they cannot be constantly worn without doing harm. Special attention is needed in taking moderate supplies of food, in evacuating the bowels regularly, in avoiding any fermentation or degenerative changes in the digestive tract.

Among drugs iron, quinine and strychnine hold first place.

The treatment of Glenard's disease is discussed from a surgical point of view by Mr. Treves in the article above named. The case illustrates several interesting points.

1. The disease may be in comparatively early life—a girl aged 22 years.

2. The progressiveness of the case notwithstanding all forms of treatment, and finally the use of a belt, which, from its extreme tightness, Mr. Treves condemned as positively dangerous.

3. The results of operation were most satisfactory.

4. The liver was found considerably displaced and the general ptosis was shown to be due to tuberculous gland disease with adhesions of the omentum and gradual dragging upon the stomach and colon.

Mr. Treves' finding in the case suggests another cause for this condition, in addition to those discussed.

Dr. Meinert discusses somewhat lengthily the subject of the position of the stomach and the various methods of demonstrating it. The most important points pronounced upon may be here enumerated.

The anatomist, the pathological anatomist and the clinician are unfortunately not in accord in determining what is normal and what is pathological in the position of the organ.

The position of the stomach is practically the same in both sexes at birth, *i. e.*, in a vertical position. Then a tendency to the "horizontal-oblique" position is manifest up to the age of four or six years. Thereafter the tendency on the part of females is generally to some degree of gastroptosis, while in males suffering from no deformity of the thorax it maintains the so-called normal position. A cause for this Dr. Meinert finds in the clothing of the females, the band about the waist bearing the weight of the garments, and the corset. That such

are causes appears from the facts (1) that females are in the great majority, 88 to 90 per cent.; (2) those girls whose garments are supported over the shoulders and who wear no corsets are practically never subjects of displacements; (3) those who live without clothing are said to be free from gastroptosis or enteroptosis.

The points to be established before concluding that the stomach is displaced are the position of the pylorus and the position of the lesser curvature. The alteration in position of these parts of the stomach is generally found associated, while the cardiac end is seldom, if ever, displaced.

According to the position of the stomach given by Luschka, that generally accepted in our text-books on anatomy, the stomach of the male is the normally situated one, while that of the female is exceptionally so found.

Many methods of determining these positions are discussed—sounds, electrical illumination, introduction of water, and the inflation of the organ. The method of inflation either by means of a tube and bulb apparatus or by the use of sodium bicarbonate and tartaric acid finds most favour with Dr. Meinert. In fact he regards it as the only means by which the exact diagnosis of the position of the stomach can be made during life. The other methods are regarded as inadequate and, in the case of illumination, fallaceous.

What is the cause of gastric displacements, as well as of those described under the term splanchnoptosis, the writer does not say with definiteness. The theory of Glenard seems most tenable—a weakness in the tissues which directly support the intestinal organs.

The above reviewed theory of Schwerdt is not accepted, the writer disposing of it in the statement, "The frequency with which visceral displacements downwards are met, even in cases presenting tense abdominal walls, is strictly against this teaching. It may be said, however, while the corset, the mode of life and dress may all produce that condition spoken of by Glenard, which undoubtedly must exist, it appears that Schwerdt has entered a little more deeply, at all events more theoretically, into the influence of these generally recognized causes, and has presented us with a theory which applies in the great majority of cases, at least according to the observations recorded

W. F. Hamilton.

Measles Complicated by Laryngeal Diphtheria.

Podack. "Measles complicated by laryngeal diphtheria."—*Deutsch. Arch. Klin. Med.*, Bd. 56, 1 and 2.

After pointing out, by exhaustive references to the literature of the

subject, that true diphtheria is occasionally associated with scarlatina, variola, whooping cough, measles and other diseases, the author reports three new cases of measles in which signs of laryngeal stenosis developed. In all three cases he was able to prove the presence of diphtheria bacilli in the larynx by microscopical examination, cultures and inoculations in guinea pigs. In spite of numerous negative results by other observers, the author believes that membranous croup occurring in measles is almost invariably true diphtheria. Purulent otitis media developed in all three cases, and diphtheria bacilli were proved to be incontestably present in the pus along with streptococci and staphylococci. The absence of membrane in the ear renders it somewhat doubtful whether the otitis media was a direct result of diphtheria in two of the cases, but in the third a distinct membrane with numerous diphtheria bacilli was demonstrated at the autopsy. This case certainly proves the occasional occurrence of true diphtheria in the tympanum.

The cases are reported in great detail, and an extensive reference to the literature of the diphtheria bacillus is appended.

Vaso-motor Œdemas Without Albuminuria.

TCHIRKOFF. "Vaso-moto œdemas without albuminuria."—*Revue de Médecine*, August, 1895.

Tchirkoff, of Kiew, calls attention to cases of general anasarca in which albumen is absent from the urine.

The patients observed were all males from 25 to 60. The anasarca set in either rapidly or slowly, and involved the extremities, serous sacs, trunk and face, precisely like a renal dropsy. In the majority of cases (5 out of 7) there was distinct evidence of syphilis, and treatment with potassium iodide rapidly relieved the symptoms. In the first case cited various diuretics, digitalis, caffeine, failed completely, yet the disease yielded rapidly to iodide.

In one case marked dyspnœa and cyanosis due to the enormous collection of fluid set in, and it was found necessary to incise the scrotum to allow this fluid to drain off. After the escape of 10 litres of fluid the urgent symptoms passed off, only to reappear five days later. Iodide of potassium was then administered, when the œdema rapidly diminished and completely disappeared six weeks later.

Great care seems to have been taken in excluding cardiac, hepatic, renal and blood conditions as a possible cause of the œdema, and the evidence is very strong that general anasarca may form one of the protean manifestations of syphilis. *F. G. Finley.*

Midwifery and Diseases of Infants.

After Effects of Symphysiotomy.

Woyer. "Kasuistischer Beitrag zur Symphyseotomiefrage."—*Centralblatt für Gynäkologie*, 25 Jan., 1896.

A remarkable case occurred in Prof. Schauta's wards (Vienna) which is interesting on account of recent discussions respecting the after-effects of symphysiotomy upon the pelvis. The patient, æt. 34, III-para, a strong, muscular, well-nourished woman, was admitted on the 5th of February, 1893, in labour. The pelvic measurements were as follows: sp. 27 cm., cr. 27, tr. 29½, c.d. 10½, c.v. (measured after Skutsch's method) 8 c.m. The promontory projected strongly, the lower part of the sacrum pointing outwards and backwards. This was a typical simple flat rachitic pelvis with moderate contraction of the conjugate of the brim. The head remained above the inlet, notwithstanding strong labour pains; finally the membranes were ruptured and axis-traction forceps applied, but it was impossible to bring the head through the brim. Symphysiotomy was then performed and delivery easily effected. Convalesence was perfect and the patient was discharged on the sixteenth day. In the autumn of 1894 she became pregnant again and re-entered the hospital on 30th May, 1895. The pelvic measurements were larger than before, especially the antero-posterior, they were as follows: sp. 27½ cm., cr. 29½, tr. 33, c.d. 11¾, c.v. (after Skutsch) 8·9 cm. Labour terminated without artificial aid on 23rd July. The remarkable point in this case is the permanent alteration of the pelvis which remained after symphysiotomy. Not only were the measurements increased, but the very type of pelvis was changed from the simple flat rachitic with projecting promontory to the normal, through which a full-sized child was expelled by the natural efforts.

The Question of Puerperal Self-infection.

Romme. "Des propriétés bactéricides des sécrétions vaginales chez les femmes enceintes."—*Archives de Gynécologie et de Tocologie*, February, 1896.

Jewett. "The question of puerperal self-infection."—*American Gyn. and Obstet. Journal*, April, 1896.

Much confusion has arisen from the use of the unfortunate term

auto-infection. *Contact-infection* is universally admitted; a patient may be infected during labour or the puerperal period by infective matters introduced from without. But can she infect herself? Are there micro-organisms present primarily in her genital tract which are capable of infecting her during labour or the puerperal period, even though contact infection has been excluded? If a woman is liable to infect herself by means of micro-organisms which are pre-existent in her own vagina, can we ever be sure that a case of puerperal septicæmia is really due to the carelessness of physician or nurse? Such a doctrine would be a direct premium on carelessness, would paralyze honest effort and would retard the general adoption of strict antisepsis in obstetric practice. The term *auto-infection* is a misnomer and should be banished from obstetric literature, for primarily all infection comes from without, and the normal parturient woman does not harbor pathogenic micro-organisms in her genital tract. If there has been pre-existent ovarian abscess or salpingitis or a pus focus elsewhere in the pelvis, her condition is pathological at the time of labour and the course of the puerperium is not normal.

Dr. Jewett discusses the relation of pus-producing germs primarily present in the body of the pregnant woman to child-bed sepsis, and devotes attention chiefly to the vaginal secretion, since upon this hinges the practical points of treatment. Is the average parturient liable to infection from the bacterial contents of the vagina? Like other open body cavities the vagina may be invaded by pathogenic micro-organisms; the gynæcologist prepares the vaginal surface as carefully as he does the skin before operating. Should the obstetrician do the same? Opinions and practice vary. Essentially three different opinions are held in the profession:

1. That the vaginal secretion may infect whether healthy or diseased.

2. That only pathological secretions can infect.

3. That the vaginal bacteria, either in health or disease, have practically no part in the ætiology of child-bed fever.

The upholders of the first use disinfectant douches before and after labour as a routine practice. The second class douche only when the secretions are pathological, while the third class rarely use the douche at all.

After reviewing the opinions and practice of prominent Continental and American obstetricians, Dr. Jewett draws the following conclusions:

1. There is no clinical proof that puerperal infection can occur from normal vaginal secretions.

2. All child-bed infection in women previously healthy is by contact.

3. Prophylactic vaginal disinfection as a routine measure is unnecessary, and even in skilled hands is probably injurious.

4. Its general adoption in practice could scarcely fail to be mischievous.

5. In healthy puerperæ, delivered antiseptically, post-partum douching is also contra-indicated.

6. These rules must hold good in the simpler cases of manual or instrumental interference in which the uterus is not invaded.

7. A purulent vaginal secretion exposes the woman to puerperal infection.

8. In the presence of such discharges at the beginning of labour the vagina should be rendered as nearly sterile as possible.

9. Concentrated antiseptic solutions should not be used, and the process should be conducted with the least possible mechanical injury to the mucous surfaces.

10. In cases of highly infectious secretions the preliminary disinfection should be followed by douching at intervals of two or three hours during labour.

11. Sterilized glycerin, or other suitable material, may be used to restore the proper lubrication of the birth canal.

12. The safest and most efficient means for correcting vicious secretions is a mild antiseptic douche repeated once or more daily for several days during the last weeks of pregnancy.

13. It is the duty of the obstetrician to know before labour the amount and character of the vaginal discharge.

14. Clinically the amount of discharge, its gross appearance, and that of the mucous and adjacent cutaneous surfaces usually furnishes a sufficient guide to the treatment.

15. Probable unclean contact within 24 or 48 hours is an indication for prophylactic disinfection.

Romme reviews at length the investigations of Döderlein, Kroenig, Menge, Walthard and others, and refers to the results of the new treatment in which no vaginal examinations are made and no vaginal douches are given either before or after labour. Mermann in 1,200 normal labours conducted on this plan had a morbidity of 5 to 7 per cent. and a mortality of 0 per cent. In Dresden, in 1891, Leopold and Goldberg in 1,489 labours had a morbidity (by infection) of 8·34 per cent. and a mortality (by infection) of 0·4 per cent. More recently Leopold published the statistics of 1,382 labours conducted without vaginal injections with a morbidity of 0·65 per cent. and a mortality

of 0·07 per cent. Ferrata in 800 confinements had a morbidity of 4 per cent. and a mortality of 0·05 per cent.

Döderlein holds that virulent micro-organisms (especially streptococci) in the vagina are comparatively rare in pregnant women, and that in the immense majority of cases the vagina is relatively aseptic. He attributes the absence of pathogenic microbes to the presence of vaginal bacilli and the acid reaction of the secretions which result from their biological activity.

Kroenig attributes the destruction of pathogenic microbes to the action of the vaginal secretions and not to the vaginal bacteria. He finds that streptococci are killed rapidly, staphylococci less rapidly, and pyocyanic bacilli least rapidly of all. He holds that the vagina of a pregnant woman should be considered aseptic (free from pathogenic microbes) when three days have elapsed since the last vaginal examination.

Menge's conclusions in the main support those of Döderlein. He finds that the vagina rids itself of pathogenic microbes in a period of time varying from 2½ to 70 hours.

Walthard finds the genital tract of pregnant women divisible into two parts; the lower part, containing microbes, includes the vestibule, the vagina and the lower portion of the cervical canal; the upper part, which is sterile, comprises the upper part of the cervical canal, the uterine cavity and the tubes. The cause of this sterile condition he attributes to the action of the mucous plug secreted by the cervical glands, which fills the cervix and is being constantly pushed out into the vagina by the formation of fresh mucus. This mucus is a poor culture medium. He also attributes to the vaginal secretions the power of determining an influx of leucocytes which attack and destroy the pathogenic microbes. He therefore condemns vaginal injections in normal labours where there is no traumatism and advises the limiting of vaginal examinations and the use of precautions to avoid carrying septic matters above the external os, *i.e.*, above nature's safety plug of cervical mucus.

Menge concludes that the causes of the bactericidal power of the vaginal secretions are multiple, and may be arranged in the following order according to their relative importance: (1) the antagonism between the ordinary vaginal bacteria and the microbes which accidentally penetrate within its cavity; (2) the products of activity of the vaginal bacilli; (3) the acidity of the secretions; (4) the properties of the secretions from the anatomical elements of the vagina; (5) leucocytosis with or without phagocytosis; (6) the absence of free oxygen in the vagina.

Although the opinions of eminent obstetricians are thus somewhat at variance, it is perhaps safe for us to conclude that in the present state of our knowledge, a healthy parturient may be considered safe from septic infection and does not need vaginal douching either before or after labour, provided contact infection can be excluded. But if there is a pathological vaginal discharge, or the vaginal secretions are neutral or alkaline, repeated vaginal douches with a mild antiseptic should be given before, during and after labour and during the puerperal period. Vaginal examinations should be few, the hand should not be passed into the uterus unless it is absolutely necessary to do so, and the greatest care should be taken to avoid contact infection by scrupulous cleansing of hands, instruments, dressings and everything which is brought in contact with the genital tract.

The Action of Anæsthetics During Child-birth.

Bukoëmsky (St. Petersburg). "Ueber Anæsthesirung durch Aether- und Chloroform-Inhalation bei normalen Geburten."—*Monatsschrift für Geburtshülfe und Gynakologie*, March, 1896.

The questions of anæthesia and the choice of anæsthetics in obstetric practice are of great interest. Chloroform and ether are both employed. What are the advantages, disadvantages and indications of each? Many observers have studied the action of chloroform, but comparatively little has been done for ether. Bukoëmsky carried out a series of experiments to determine whether ether or chloroform render labour painless and why they do so, what effect they have upon the contractile power of the uterus, upon the strength and frequency of the pains and the interval between them, upon the dilatation of the os, and the abdominal pressure. He looked also for irritative symptoms due to ether and chloroform, examining their action upon the kidneys, respiratory function, pulse, temperature and general condition. In the puerperal period he examined the loss of blood, the involution of the uterus, the lochia and the secretion of milk, and finally noted the effects on the child and the frequency and degree of *icterus neonatorum*. The following conclusions are drawn:

Ether.—Ether undoubtedly diminishes the painfulness of uterine contractions in all cases and generally makes painless the actual birth of the child. Its anæsthetic effect is most marked during the expulsion period, if the patient has been already partially under its influence. It does not prolong labour, but on the contrary seems to shorten it about one hour in primiparæ. It *increases* the force of the uterine contractions, as shown by the toko-dynamometer. It does not lessen the length of the pains, but shortens the intervals between them. In

a few cases there were irritative symptoms at the beginning of its administration, but they soon disappeared. The course of the puerperal period is remarkably favourable after ether; in primiparæ and deutiparæ the lochia became serous sooner, involution began earlier and proceeded more rapidly than without ether. In multiparæ serous lochia appeared a day or two later. Hæmorrhage did not occur in any case. The general comfort of the patient was not lessened and there was no respiratory trouble, in fact there seemed to be no noteworthy effect upon pulse, temperature or respiration. The swelling of the breasts was less in some cases and the establishment of the milk occurred later. The general effect on the secretion of milk was not unfavourable; in some cases the quantity seemed to be increased. Even in larger doses ether had no unfavourable effect on the fœtus, which was in no case dull or narcotized when born. Icterus was less common and severe and the loss of weight was less during the first week. The best time for the administration of ether seemed to be when the os was dilated to the width of three finger-breadths; it seemed to have no effect upon the early dilation of the os.

Chloroform.—Small doses do not diminish the contractile power of the uterus. In the majority of cases examined the pains were shortened eight seconds, but in a few they were lengthened eight seconds. The intervals between the pains were generally lengthened 13 to 49 seconds. Although chloroform generally protracts labour somewhat, it seems to have no ill effect on the mother when given in small doses. It is pleasanter than ether, but in a few cases slight irritative symptoms were noticed at the commencement of chloroform-narcosis. It had no unfavourale effect upon the puerperal period, and in no case did hæmorrhage occur when it was used in small doses. The children seemed unaffected by it, and a mild icterus occurred in about half the cases. The best time for administration is the same as for ether.

In comparing the action of ether and chloroform it seems that ether is generally preferable, because it has less toxic effect upon the organism and does not produce such ill effects as chloroform if it has to be given in a relatively large quantity or for a length of time. Moreover, it shortens labour and has a more favourable effect upon the puerperal period and upon the fœtus. As most of these patients were delivered at night, and a common coal-oil lamp was used in the room, there need be no fear of ether taking fire or exploding if ordinary precautions are used.

From these observations it seems clear that either anæsthetic may be used in ordinary cases of labour, if given carefully and in small doses, without injuring mother or child and without causing hæmor-

rhage during the puerperal period. It is equally certain that chloroform may predispose to hæmorrhage and injure both mother and child if given in too large doses or for too long a time. Chloroform should be selected when complete relaxation of the soft parts is required or when there is much spasm to overcome. Ether is preferable when deep anæsthesia has to be maintained for some time, or when there is severe cardiac trouble, or when some operation has to be done after the conclusion of labor, such as the repair of perineal laceration or the removal of an adherent placenta. When chloroform has been given for some length of time during labour, the child is apt to be lethargic when born and does not begin to cry without considerable stimulation.

J. C. Cameron.

Pharmacology and Therapeutics.

The Serum Therapeutics of Malignant Tumours.

Le Dentu. "Toxithérapie et serothérapie des tumeurs malignes." —*Gazette des Hôpitaux*, No. 17, February 8, 1896.

Coley. "Treatment of inoperable malignant tumours with the toxines of erysipelas and the bacillus prodigiosus."—*The American Journal of the Medical Sciences*, July, 1894.

At the present time there is doubtless no subject which is exciting keener interest in the medical world than that of the serum therapy of disease. While this method has not so far been attended by success in every case, yet its wonderful efficacy in the treatment of certain diseases, notably diphtheria, is such as to lead one to anticipate equally brilliant results in dealing with other maladies which hitherto have baffled medical science and skill. It is not surprising, then, that some observers should have attempted to follow this method of treatment to control one of the deadliest foes which the medical profession is called upon to face, and while it would be premature to assume too much from the results of the investigations which have been made, yet there is evidence to show that the subject is one well worthy of further study and research.

So far observers have conducted their investigations upon two very different principles. Basing themselves upon the markedly good results known to occasionally occur from an attack of erysipelas, a certain number have essayed to modify the course of the malignant new growth by producing an attack of this disease. Others have followed the principle of serum therapy proper, *i. e.*, that of opposing a micro-organism or its virus to itself. Unfortunately for the latter school the micro-organism of cancer, supposing it to exist, is so far unknown. To overcome this difficulty they have utilized the fluid obtained by the maceration of a cancerous tumour in sterilised water to immunise certain of the lower animals, and the serum obtained subsequently from these has been the therapeutic fluid employed.

Here the methods employed have been: 1, Inoculation of the living streptococcus; 2, inoculation of the filtered medium of streptococcus cultures; 3, inoculation of a combination of filtered media of streptococcus and m. prodigiosus; 4, the injection of the serum of animals inoculated with erysipelas; 5, serum therapy with cancerous serum.

The recorded cases of the cure or the amelioration of malignant new growths by the occurrence of an intercurrent attack of erysipelas have been collected by Bruns in Germany and by Répin in France, and Le Dentu in the paper above quoted has analysed these and other cases. Bruns reports the cure of three sarcomata, two lympho-sarcomata and one melanotic sarcoma of the breast. Répin's records include twenty-one cases, of which eleven were sarcomata of different varieties and ten, epithelial growths. Six cases are reported as being permanently cured, all being sarcomata. Among those who have noted similarly beneficial results may be mentioned Coley, who observed the disappearance of a submaxillary sarcoma, Wyeth, the cure of a sarcoma of the thigh, Biedert, that of a sarcoma of the tonsil and Busch the cure of multiple sarcomata of the skin. Plenio records the same good result in a case of melanotic sarcoma of the hip. A specific action on the part of the streptococcus of erysipelas, however, is not to be inferred from these cases, for Fischer has shown the good effects resulting from an attack of scarlet fever, typhoid fever, cholera or pyæmia. Again, malignant growths are not alone in reacting to the above diseases, for Ricord and Mauriac have observed similar results in cases of syphilis, and in tuberculous adenitis, lupus, nasal polypi and cicatricial cheloid. Why tuberculous adenitis and lupus should be affected in this manner is difficult of comprehension.

The discovery in 1881 of the streptococcus of erysipelas by Fehleisen led to the inoculation of malignant tumours with cultures of the micro-organism itself, but four fatal cases observed by Coley (2), Jänike and Feichenfeld showed the danger incurred by this method. Lassar, of Berlin, in 1891, was the first to employ inoculations of the sterilized toxine of the streptococcus, and Coley, of New York, as the result of the observations of H. Roger upon the increased virulence of certain bacteria when associated with the micrococcus prodigiosus, succeeded in combining the toxines of the streptococcus and m. prodigiosus in definite proportions so as to obtain more certain results than those which occurred from the use of the former alone.

While these investigators confined themselves to the inoculation of the tumour mass with the streptococcus itself, Emmerich and Scholl advanced a step farther. Having injected a living culture of the streptococcus into the cellular tissue of a sheep, the blood was collected shortly before the animal's death, the serum separated from the plasma, filtered and injected into the neoplasm in definite quantities for a series of days. The experiments of Bruns and Schuler were made upon similar lines.

The method followed by Maydl and Kopfstein is somewhat the

same. On the fourth day after the inoculation of a sheep with the streptococcus the blood is drawn, allowed to stand for 48 hours, and then filtered, one portion being filtered twice, the virulence of the latter being greatly reduced by this means.

A method more closely allied to serum therapy proper has been followed in the investigations of Richet and Héricourt. The fluid obtained by the maceration of a cancerous tumour with a little water is injected into an ass, and the injections are continued for a number of days until the animal is supposed to have been rendered immune. The serum obtained from this animal is then utilized in the treatment of the malignant growth.

The seat of injection has varied with different observers. Some inject the serum into the neoplasm itself, others in the immediate neighbourhood of the growth, and a few have confined their injections to distant parts of the body. Répin alone has dared to give intravenous injections. The dose employed has also differed widely. The injections are continued for weeks, or even months, and in increasing quantities.

The effects of the injections vary. When injections of the sterilized toxine of the streptococcus are used no constitutional effect may result, but a marked reaction invariably follows the injection of the mixed toxines of the streptococcus and m. prodigiosus. Some of these effects are : a rise in temperature, which may reach 40° C., preceded by chills, nausea, headache and vertigo; occasionally suffocative attacks and cardiac pain, and more rarely grave results, as collapse, syncope and cyanosis. These disturbances gradually diminish as the treatment is continued. An abundant leucocytosis is constantly observed, as well as a rapid loss in weight.

The local effects resemble those produced by an attack of erysipelas. If the tumour be non-ulcerated, and particularly if a living culture of the streptococcus has been employed, it becomes œdematous, softens and atrophies in a variable degree. When ulceration has occurred the ulcerated portions are soon thrown off after having undergone softening, disintegration and necrosis. Complete mortification of a tumour has been observed six times, in two epithelial cancers, two lympho-sarcomata, one mixed sarcoma and one endothelioma.

The marked reaction resulting from these injections in a certain number of cases has naturally led to an enquiry into the nature and cause of the diminution in size of the tumour. Petersen refers the changes observed to the high temperatures which follow the injections. As fever alone has not been noticed to affect malignant tumours in this manner, it can hardly be accepted as the explanation of the

phenomenon. Coley, Emmerich and Scholl attribute the amelioration to a direct parasiticide action of the injections thereby implying a subject which is *adhuc sub judice*. Répin considers it the microbic origin of cancer the result of a cellular degeneration similar to that caused by arsenic and phosphorus, a view which is borne out by the histological examination of the affected tumours.

The theory of the specific action of the cultures and toxines is also open to objection. On the one hand we find definite results following the use of a living culture of the streptococcus, and also of the toxines of the streptococcus and m. prodigiosus; on the other hand we find corresponding results following Richet and Héricourt of employing cancer serum. The injections cannot be regarded as being specific for it is more than unlikely that methods which differ so widely should be followed by results which in so many respects are similar. If the injections act upon certain cells which are common to all tumour masses, how is it possible that they should act upon the specific cells of each variety of tumour, *e.g.*, those of the sarcomata and of the epitheliomata? The one cause being capable of acting directly upon the specific cells of the sarcomata and epitheliomata, we would be driven to admit of a close relationship between the two. It is more reasonable to conclude that either the connective tissue is principally affected, or again the migrated leucocytes, both of which enter into the formation of tumour masses. This opinion has been championed by Fabre-Domergue, who advanced it at a séance of the Société de Biologie. At the same time the changes in the cellular elements proper, studied by Busch and Neelsin, must be borne in mind, but they are to be interpreted merely as a necrobiosis, without any definitely specific action being attributed to the modifying agent.

The clinical records of the cases treated vary somewhat. Fehleisen, using an injection of a living culture of the streptococcus, caused an attack of erysipelas in five cases. In four of these he observed a temporary atrophy of the neoplasm, and in the fifth case, a carcinoma of the breast, he reports a complete cure. Coley, employing streptococcus cultures, out of ten inoculations, was successful in producing an attack of erysipelas in four cases. In two of these he records the complete and rapid disappearance of the tumour, while the remaining two showed a considerable decrease in size.

Spronck in his investigations studied the effects of the treatment in eight sarcomata, two of which were melanotic, and in seventeen inoperable epitheliomata. Some retardation in the rapidity of growth and occasionally a diminution in size were observed.

Coley, employing his injections of the combined toxines of the

streptococcus and micrococcus prodigiosus, observed thirty-five cases of malignant inoperable tumour treated in this manner. Of this number twenty-four cases were sarcomata, eight were epitheliomata and three were either sarcoma or carcinoma. Among the twenty-four cases of sarcoma treated, in four there is hope of a permanent cure, from fourteen months to three months having elapsed since the treatment was discontinued. The tumour has either disappeared completely or any part of it which persists remains dormant. In addition to these cases nine others showed marked improvement, eight slight temporary improvement, while in two the injections had no apparent effect. Of these two one was an osteo-sarcoma of rapid growth and the other an extensive sarcoma of the contents of the abdomen and pelvis, occurring in a weak and emaciated patient. The cases of carcinoma proved more refractory to treatment. In none of the eight cases did the tumour disappear, yet a very marked improvement was seen in the most unpromising cases. Dr. Coley has found the osteo-sarcomata the least susceptible to the influence of the toxines.

An important point in the preparation of the toxines is that cultures obtained from any but a virulent case of erysipelas are of little value. All the successful cases were treated with toxines from cultures taken from a fatal case of erysipelas. Cultures obtained from mild cases were, as a rule, ineffectual.

Johnson observed the rapid disappearance of an ulcerated tumour of the soft palate, the pillars of the fauces and the epiglottis, but a suspicious nodule remained from which the growth again spread.

Friedrich treated thirteen carcinomata, four sarcomata, one osteo-sarcoma and two lympho-sarcomata. He observed no cure, but found that occasionally the patient experienced some amelioration in the subjective symptoms.

Roberts, Czerny, Lowenstein and Répin, using either the sterilized toxine of the streptococcus alone or in combination with that of the micrococcus prodigiosus, give negative results.

Emmerich, following his own method of treatment, reports eight cases, of which six showed a rapid amelioration, while two remained unaltered. Bruns was unsuccessful in six cases, but in marked contrast to these, Schuler has described the case of a carcinoma of the breast which was cured within a few days. It would be interesting to learn whether this *cure* has been permanent or not. Czerny treated a large sarcoma of the ear and surrounding parts and noticed a great reduction in its size, but a nodule remained. The complete cure of an intra-peritoneal sarcoma in a child of 12 is recorded by Mynter, and

DeWitt saw a similar result in a case of sarcoma of the abdominal wall, a part of which it was impossible to remove by operative measures.

Coming now to the results of serum therapy proper, as practised by MM. Richet and Héricourt, we find that they have employed their method in more than fifty cases of malignant growth. They note the following results: Diminution in pain, sometimes immediately following the first injection; rapid amelioration of the ulcerated portions which tend to cicatrize; reduction in the size of the tumour and of the involved glands: slowing in the growth of the neoplasm and a general improvement in health. Four-fifths of their cases benefited from these local and constitutional effects; one-fifth remained unaffected. They record no cure.

Up to the present, as a study of the above cases shows, the results of anti-cancerous injections are somewhat conflicting. The cases which are reported as being cured are few in number, yet these cases, taken in conjunction with the marked amelioration observed so frequently, must be considered as a decided step in advance in the treatment of malignant tumours. The serious constitutional disturbances mentioned, however, as well as the occasional formation of abscesses at the site of inoculation, show that the injections are not unaccompanied by a certain amount of risk. It has been noticed also, in certain cases, that a distinct aggravation in the malignancy of the tumour has followed upon the methods described.

E. J. Semple.

Pathology.

The Bubonic Plague.

Kitasato. "The bacillus of the bubonic plague."—*Lancet*, II., 1894, pp. 325 and 428.

Yersin. "La peste bubonique à Hong Kong."—*Annales de l'Institut Pasteur*, VIII., 1894, p. 662.

Lowson. "Notes on the plague in China."—*Lancet*, II., 1895, p. 199.

Lowson. "The epidemic of bubonic plague in 1894."—Medical report, Hong Kong, Noronha & Co., 1895.

Aoyama. "Mitteilungen über die Pestepidemie im Jahre 1894 in Hong Kong." *Mittheilungen der Med. Fak. der k. Japanischen Univ. zu. Tokio*, III., 1895, No. 2. (Abstracted *Cbl. f. Bakt.*, XIX., 1896, p. 481.)

In his History of epidemics in Great Britain Creighton lays not a little stress upon the succession of pestilences, pointing out how one appears upon the field, causes terrible devastation during a series of years and then, dying down, gives place to another. We have for example the sweating sickness, which came in the 15th and disappeared in the 16th century, or to give a more familiar example, cholera which first appeared in Europe shortly before 1830 and now with each return appears to be capable of less and less advance. Syphilis again, although evidently in existence before the close of the 15th century, suddenly appeared, in 1494, in a most fatal and truly epidemic form, became mitigated within 30 years and, though still capable of inducing a hideous series of sequelæ, would seem to be steadily, if slowly, assuming characters of a milder type. While there is much to be adduced in support of this succession, the stress that has been laid upon it by sundry anti-vaccinators as explained by the sudden and remarkable diminution in smallpox mortality at the beginning of this century is wholly unjustifiable. Nor if there be such a succession, does its existence imply that of necessity diseases die out and are replaced by others. While it is not always easy to trace the continued existence of any given disease between its epidemic manifestations, we have evidence in connection with several that

in certain regions they remain endemic. The endemic nature of cholera in India is well known to all, and in the case of one great pestilential fever, the sweating sickness, extinct for centuries, as an epidemic, Creighton himself, following Hirsch, points out that it still lingers in a mild form in the valley of the Seine—as the Picardy sickness.

The bubonic plague, although it has not invaded Europe since the Marseilles epidemic in 1720, is known to be endemic in more than one region of the East, notably in sundry villages of the great Arabian plateau. This pestilence, indeed, furnishes the most striking example that we possess of constancy of a disease and adherence to type. It is the disease having the longest record.

According a recent leader in the *Lancet* Thucydides' vivid picture of the pestilence occurring during the siege of Athens in 430 B. C. is held by some to be the earliest recorded example. Thucydides himself was attacked and undoubtedly he writes with authority. He writes to the intent that "anyone who knows (the symptoms) beforehand may recognize the disorder should it ever reappear." But the symptoms given by him cannot be said to coincide with those of the bubonic plague; the duration alone is too long, and there is no emphasis laid upon the development of buboes. His description might be that of a peculiarly malignant influenza with premonitory redness and inflammation of the eyes, violent headache, sneezing, hoarseness and chest and throat disturbances, or taking into account the skin complications, might, as Dr. Wyatt Johnston has suggested to me, apply to the appearance of measles in a community hitherto unaffected by that disease; but it is not that of bubonic plague.

Nevertheless our records of the bubonic plague stretch back into yet more remote antiquity. I remember discussing this very subject of succession of disease—apropos of Creighton's work, then just published—with one of most learned and truest of men, the late Robertson Smith. It has been said of a well-known English man of science that not only was he the editor of *Nature*, but he appeared to consider himself the author thereof. Of Robertson Smith it might be declared that he was not simply the editor of the *Encyclopædia Britannica*, but was in himself a universal encyclopædia. From the constitution of the family in ancient Egypt, through higher mathematics and the fauna of the Malay archipelago, down to the latest theories upon the nature of pernicious anæmia and the most scientific method of keeping tobacco, there were few subjects upon which he did not show himself more than abreast of the times. And while discoursing upon

this matter he pointed out to me that the curious history of the return of the Ark by the Philistines[1] is clearly connected with an outbreak of a plague which was probably bubonic.

It may seem a long digression,

—— A far cry from Hong Kong to Beth-shemesh.——

but I believe that Robertson Smith published no note upon the matter, and I myself have never referred to it in print, hence it may not be inopportune to indicate briefly the evidence supporting this view that the plague broke out among the Philistines rather more than 1,100 years B.C., or about 3,000 years ago. The general statement is that there is no record of the true plague in Holy Writ.

After the Ark had been brought to Ashdod and placed in the temple of Dagon and Dagon had fallen upon his face to the earth and "only the stump of Dagon was left to him," we are told that "the hand of the Lord was heavy upon them of Ashdod, and He destroyed them and smote them with emerods, even Ashdod and the courts thereof." Whereat, after a council of the lords of the Philistines, the Ark was carried about unto Gath, and thereupon this second city was visited with a very great destruction, and the men of this city, both small and great, were smitten so that very many died, and "they had emerods in their secret parts." Therefore they sent the Ark of God to Ekron, and forthwith "there was a deadly destruction throughout all the city . . . . . and the men that died not were smitten with emerods." Thus at the end of seven months the priests and the diviners advised that to stay the destruction the Ark be sent away, *not empty, but with a trespass offering.* "Then shall ye be healed." And the priests and diviners ordered that the trespass offering should take the form of *five golden emerods and five golden mice*, according to the number of the lords of the Philistines, "for one plague was on you all and on your lords." And thus, according to the well-known old history, the Ark and the coffer with the golden jewels—the mice and the emerods—were placed upon a new cart and drawn by the two milch kine that had never known a yoke, and unurged by man the kine took the straight way into Israelitish territory, to Beth-shemesh, lowing as they went, and crossing the border were offered as a burnt sacrifice by Joshua the Beth-shemite, the cart being broken for the burning, and the Ark being placed upon the great stone of Abel. And there was great rejoicing at the return of the Ark. But now, "because they looked into the Ark of the Lord," the

[1] I. Samuel, cap. 5-6.

people of Beth-shemesh were smitten with great slaughter, fifty thousand three-score and ten dying.[1]

There could scarce be a more vivid picture of the advance of a plague from town to town, or the conveyance of infection across the border from the one people to the other. The especial interest here, as showing the nature of the plague, centres around the trespass offerings. Evidently, as Robertson Smith pointed out, the disease was associated with the development of characteristic swellings, " tumoars" as he and his fellow revisers expressed it in the Revised version, which could be modelled in gold and most probably the " emerods in the secret parts " were buboes—lymph glands enlarged to the size of a walnut or a hen's egg and of a livid colour—characteristic of the bubonic plague. By sending the golden emerods away as a trespass offering, the ark the priests and diviners hoped that the disease also would pass from their coasts.[2] But, said Robertson Smith, the meaning of the golden mice has always been an enigma. By good fortune I was able to point out to him that the mice afforded the requisite proof of the correctness of his theory. If the development of buboes is that which in man differentiates the true plague from other epidemic visitations, a feature equally characteristic is the behaviour of small ruminants at the onset of an epidemic. From all parts of the world we receive the same record, namely, that suddenly the rats and mice and such small deer leave their holes, and careless of surrounding human beings, or unconscious, die on the floor. Thus in 1603 Thomas Lodge, writing of the great outbreak of the plague in England, states that " rats, moules and other creatures (accustomed to live underground) forsook their holes and habitations," and in the epidemic in Northern India in 1838 we learn that the inhabitants of any house in the Marwar district instantly quitted it upon seeing a dead rat.

[1] From the time of Josephus onwards there had been much discussion concerning the fifty thousand three score and ten—or as it is written in the Septuagint three score and ten and fifty-thousand. Beth-shemesh was only a small village, hence it may be that the fifty thousand is an insertion by a later scribe, and this is the generally accepted opinion. It might, however, well be that the number gives the mortality not in Beth-shemesh alone, but throughout the land of Israel. I may here add that since this article went to press, I have in one of the best recent Bible Dictionaries (not edited by Dr. Fairbairn) found a passage indicating that other modern authorities have regarded the emerods as buboes, and the plague among the Philistines as the bubonic plague. I have, however, found no references to the mice that were at all to the point.

[2] The idea underlying this trespass offering was closely paralleled in mediæval times by the modelling of the person of an enemy in wax and transfixing the image with pins so that thereby the original might similarly be pierced by misfortune and die, and is extant even at the present day, as witness the strange collections of models of all kinds at St. Anne de Beaupré and other pilgrimage resorts throughout the world.

According to Yersin, J. N. Radcliffe and Pichon describing the disease in Yunnan, draw especial attention to the deaths of both mice and rats at the commencement of the epidemic, while Kitasato refers to the death of mice at Hong Kong. As Dr. Lowson remarks in his Hong Kong report, " the statement that the death of rats generally precedes the epidemic—although generally true—is only dependent on the fact that rats and other small-animals are peculiarly liable to be infected and have a very short incubation period of the disease. Their habits and residence also conduce to their early affection after the disease has been introduced." In connection with no other epidemic have we this remarkable feature. Thus the " golden mice," coupled with the emerods, afford convincing proof of the existence of bubonic plague among the Philistines.

The Hong Kong epidemic of 1894 has gained for itself a place in medical history, from the fact that during its course the bacillus of the plague was discovered first by Kitasato, and independently, after a very brief interval by Yersin, while Lowson and Aoyama have given us the fullest studies yet made of the clinical features and pathological anatomy of the disease.

We have little or no accurate information concerning the plague in China in early times. It is true that mediæval writers ascribed the origin of the terrible Black death (hæmorrhagic plague) to China, but apparently without full cause. It has, however, been known to be endemic in one of the southern provinces—Yunnan—for more than twenty years, as also at Pakhoi, on the southern coast. Early in 1894 it appeared at Canton, causing the death of more than 60,000 individuals in the course of a few weeks. Hong Kong, situated as it is at the mouth of the Canton river, and having a population in the main Chinese (about 150,000 out of a total of 163,000) became infected, most probably from Canton, and, at the latest, early in May. In June the disease was at its height, and it continued through the next two months. After August cases were few and far between. Altogether, according to Lowson's statistics, which confessedly do not include all the Chinese cases, more than 2,600 persons were admitted to the hospitals, of whom 2,485 died—an appalling mortality of more than 93 per cent. The Chinese were in the main affected. The mortality among the Japanese (10 cases) was 60 per cent. Among Europeans (11 cases) 18.2 per cent. How many Chinese died unrecorded in their quarter of the town will never be known. Aoyama himself suffered severely from the disease and Lowson gives a full report of his case.

The disease possessed all the typical characters—numerous dead

rats and mice encumbered the infected quarters. After an incubation period of 3 to 9 days, the infected individual became the prey of a sudden intense fever, accompanied often by delirium, but without noticeable rigor. From the first day of the fever a bubo was noticeable, at first in general solitary, later other glands, situated more centrally, became enlarged. In some of the severest cases death occurred before the bubo had time to develop ; in such there were frequent subcutaneous and submucous hæmorrhages, recalling the Black Death. In 75 per cent. of the cases (Yersin) the bubo was of the nature of an " emerod in the secret parts" being situated in the inguinal region, more correctly in the femoral chain ; the axillary glands were the next most frequent seat of primary enlargement. The swollen glands attained the size of a hen's egg. Aoyama points out that all the Japanese patients had axillary buboes, and from this fact, and from the centripetal extension of the glandular enlargement, he concludes that infection is most often through wounds of the extremities, the Chinese going barefoot, the Japanese being booted. Lowson, however, points out that all the men of the Shropshire regiment infected had femoral or inguinal buboes, and yet they were well booted—a fact which throws some doubt upon the theory of the Japanese professor. Everything, however, points to the disease being of the nature of a soil infection rather than conveyed by water, and Aoyama's theory fits in best with the fact that in most cases the disease first manifests itself in a solitary peripheral gland. Inasmuch as necropsies in some cases demonstrated the primary affection of abdominal glands, the possibility of intestinal infection must also be acknowledged.

Death occurred at the end of 48 hours, frequently sooner. If the disease continued for 5 or 6 days the prognosis was hopeful. In such cases the tense buboes became softened and suppurative and relief was obtained by operative discharge of the pus.

At autopsies performed upon those dying from this disease the swollen glands were found to swarm with minute bacilli. These bacilli resemble those found in the hæmorrhagic septicæmias of the lower animals—the bacilli of chicken cholera for example—staining more deeply at the poles, so that when not deeply stained they appear to be diplococci. They decolorise by Gram's method and grow easily in various media. In preparations made from the tissues they frequently appear as though surrounded by a capsule ; grown in broth they often form short chains, and indeed the appearance of broth cultures resemble those of the streptococcus pyogenes. Mice, rabbits and guinea pigs inoculated either with material from the infected

corpse or with pure cultures die in from one to four days. Pigeons are unaffected. The bacilli are to be found in the blood and spleen, though not in such numbers, as in the buboes. Preserved in dried films at 28° to 30° C. they die in four days or so. The action of direct sunlight killed them in a few hours.

In mice and other small animals the main features discovered at the necropsy are the development of a reddened œdema at the point of inoculation, swelling of the nearest lymph gland or glands with profusion of bacilli, congestion of the kidneys and suprarenals and great swelling of the spleen. In man, as shown by Lowson and Aoyama, the chief anatomical changes are very similar, namely, enlargement of one or more lymphatic glands, due to multiplication of lymphoid cells, surrounding reddened gelatinous œdema, some enlargement with softening of the spleen, increase in the number of white corpuscles in the blood. The liver and kidneys are congested, with parenchymatous degeneration.

There can therefore be no doubt that the causative agent of the bubonic plague has been discovered.

In general the descriptions given of the plague contain no reference to infection of cattle, but in Yunnan the destruction of these animals has been a distinctive feature, and Yersin determined the presence of the bacillus in cattle in a most virulent form. Lowson failed to obtain more than local results upon inoculating cattle and pigs, and suggests that the cattle suffer from a disease common in Yunnan and due to a similar microbe, namely, the Rinderpest.[1]

J. G. Adami.

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[1] An account of the microbe of Oriental Rinderpest is given in the *British Medical Journal* of May 16th. Dr. W. J. Simpson's description, so far as it goes, strengthens this suggestion of Dr. Lowson.

Reviews and Notices of Books.

The Treatment of Pulmonary Consumption. A Practical Manual. By V. D. Harris, M.D., Physician to the City of London Hospital for Diseases of the Chest, Victoria Park, and E. C. Beale, M.B., Physician to the City of London Hospital for Diseases of the Chest, Victoria Park. London: H. K. Lewis, 136 Gower street. 1895.

This volume is one of the very valuable series of manuals published by Lewis, of London. It deals exhaustively with the entire subject of the treatment of pulmonary consumption.

The authors, from their extensive experience with this disease, are well qualified for the task they have undertaken. The chapters on the climatic treatment and on the management of the complications are especially well and carefully written. J. S.

Physical and Natural Therapeutics. The Remedial uses of Atmospheric Pressure, Climate, Heat and Cold, Hydrotherapeutic Measures, Mineral Waters and Electricity. By Georges Haymen, M.D., Professor of Clinical Medicine in the Faculty of Medicine of Paris. Edited by H. C. Hawkins. Philadelphia: Lea Bros. & Co.

We welcome the translation into English of this standard work in French on General Therapeutics.

Prof. Haymen has been for years connected with the Paris Faculty, where he held the chair of general therapeutics previous to assuming that of clinical medicine.

The translator and editor has increased considerably the value of the volume by the judicious addition of certain practical subjects not fully dealt with in the original. J. S.

The International Medical Annual and Practitioner's Index. A work of reference for Medical Practitioners. 1896. Fourteenth Year. New York: E. B. Treat, 5 Cooper Union. Price, $2.75.

We gladly welcome this work. It is in many respects one of great usefulness to the busy practitioner. In addition to a concise *resumé* of the important advances of the past year, it contains several articles on special subjects, all of which are of great value.

The chapters on Malarial Poisoning; Neuralgia of Dental Origin; Remedial Value of Cycling: Sensory Disturbance of Sensory Nerve Roots; Angio Neuroses; Life Assurance, are alone worth the price charged for the volume. J. S.

A Treatise on Nervous and Mental Diseases. By Landon Carter Gray, M.D., Professor of Diseases of the Mind and Nervous Diseases in the New York Polyclinic. New (2nd) Edition. 172 Engravings and Three Coloured Plates. Philadelphia: Lea Bros. & Co. 1895.

The second edition is a very considerable improvement on the first. The introductory chapters have been entirely rewritten to conform with the recent development in the finer anatomy of the central nervous system. The illustrations of this part of the work are particularly good.

While many of the chapters devoted to the special diseases of the nervous system are fully abreast of modern teaching, a few will be found to be lacking. We would especially call the attention to the one on the progressive muscular atrophies. The myopathies and myelopathies are mingled together in a mass of confusion, and appear as if they might have been written a quarter of a century ago.

The work concludes with a short and clear account of the more common forms of insanity. J. S.

Diagnosis and Treatment of Diseases of the Rectum, Anus and Contiguous Textures. Designed for Practitioners and Students. By S. G. Gant, M.D., Professor of Diseases of the Rectum and Anus, University and Women's Medical College; Lecturer on Intestinal Diseases in the Scarritt Training-School for Nurses; Rectal and Anal Surgeon to All-Saints, German, Scarritt's Hospital for Women, and Kansas City, Fort Scott, and Memphis Railroad Hospitals, to East-Side Free Dispensary, and to Children's and Orphan's Home, Kansas City, Mo.; Member of the American Medical Association, National Association of Railway Surgeons, the Mississippi Valley Medical, the Missouri Valley Medical, and the Missouri and Kansas State Medical Associations, etc., etc. With two chapters on "Cancer" and "Colotomy" by Herbert William Allingham, F.R.C.S. Eng., Surgeon to the Great Northern Hospital; Assistant Surgeon to St. Mark's Hospital for Diseases of the Rectum; Surgical Tutor to St. George's Hospital, etc., etc., London. 400 p. F. A. Davis Co., Philadelphia, New York and Chicago.

Dr. Gant has got out a book which contains much valuable information, but it is a pity that he has not paid more attention to the composition, for in many places the English is not that of the school-master, while in other places he is led into ambiguities simply from a careless way of expressing himself. In the chapter on the anatomy of the parts, he says that the rectum is in contact, in front, with the uterus in the female, a statement which is certainly not strictly correct, while on page 14 a sentence is started in the subjunctive and ended in the indicative mood. We trust that these and similar solecisms will be corrected in future editions. The chapter on "The relation of pulmonary tuberculosis to fistula" is an

exceedingly good one, and the subject is discussed as clearly as possible ; the rules laid down being likely to be of great advantage to anyone wishing to treat a case suffering from this unhappy combination of diseases. In the treatment of internal hæmorrhoids, the clamp and-cautery operation is given the preference.

Mr. Allingham writes two chapters, one on cancer of the rectum and one on colotomy. The latter is a complete *resumé* of the subject, being practically a condensation of his excellent work on colotomy. The treatment of cancer by excision of the rectum is not gone into at all fully. The Kraske operation is dismissed in seventeen lines, and the most important statement made by the writer is "I have used it on several occasions." Heinecke's operation is not mentioned, although now in great favour in Germany and elsewhere.

A new feature is the introduction of a chapter discussing the reasons for the frequency of rectal disease in railroad employes. The general causes are given as three : Irregularities of living; erect position assumed by employes ; irregular, jarring motion of the train.

Auto-infection from the intestinal canal is a very interesting chapter on the bacillus coli communis and the disturbances produced by it. This is one of the most important parts of the book, for it directs attention to a subject of great importance in abdominal surgery generally and one which cannot be passed over with impunity.

At the head of this review we print the title page in full, so as to draw attention to a fashion which has lately come into vogue, that is, to add titles which are not either diplomas or appointments, official or *honoris causa*, but simply ordinary membership of societies to which any repectable graduate in medicine is eligible. The book is good enough to stand on its own merits without such artificial padding, and with the correction of a few points such as we have noted, we can recommend it to our readers as a useful work. R. C. K.

Pregnancy, Labour and the Puerperal State. By Egbert H. Grandin, M.D., Consulting Surgeon to the New York Maternity Hospital ; Consulting Gynæcologist to the French Hospital, N.Y., etc. ; and George W. Jarman, M.D., Obstetric Surgeon to the New York Maternity Hospital ; Gynæcologist to the Cancer Hospital, N.Y., etc. Illustrated with Forty-one (41) Original Full-page Photographic Plates from Nature. Royal Octavo, Pages viii. 261. Philadelphia : The F. A Davis Co., Publishers, 1914 and 1916 Cherry Street.

This is a companion volume to Obstetric Surgery written by the same authors, and received with so much favour by the profession. It does not pretend to be a treatise or text-book on obstetrics, but is written from the clinical standpoint only. While, therefore, it cannot take the place of more systematic works, it will prove useful to those who desire to get in

small compass reliable information respecting modern methods of obstetric practice. Part I. deals with the diagnosis, duration, hygiene and pathology of pregnancy, and the diagnosis of presentations and positions. Part II. treats of the mechanism and clinical course of labour, the management of normal and abnormal labor, and the care of the new-born infant. Part III, describes the normal and the pathological puerperium. The chapters on the pathology of pregnancy, the management of normal and abnormal labour and the care of the new-born infant are particularly good, while the description of the normal and abnormal puerperium present modern views in compact and readable form. There are many illustrations, mostly reproductions of photographs from life ; some are excellent, but others are not very distinct and convey but little information. Plates 28, 29 and 30, showing the management of the delivery of the head and the support of the perineum, seem to emphasize too much the use of the finger in the rectum as a means of controlling the sincipital pole of the fœtal head. It is questionable whether it is wise to recommend such a manœuvre as a routine practice. The same end may be obtained more easily in other ways, without infecting the fingers with fæcal matters, with the attendant risk of conveying colon bacilli into the parturient canal. In the text, the authors do not lay much stress upon this manœuvre, for they say, " The thumb applied to the head and, if need be, the index finger inserted into the rectum in order to enable the extension to be of the most gradual type, is the proper way to deliver the head under normal circumstances." It would be an advantage if the present book and Obstetric Surgery could be issued together as one volume. J. C. C.

A Manual of Physiology, with Practical Exercises. By G. N. Stewart, M.A., D.Sc., M.D., Edin., Professor of Physiology in the Western Reserve University, Cleveland. With numerous illustrations, including five coloured plates. London : Balliere, Tindall & Cox. Cleveland : The Cleveland Medical Publishing Co. 1896.

This work is, we believe, the latest text-book in the English language on the important subject of physiology. It is an octavo volume of about 800 pages, well printed and well bound. It will be seen that so far as size is concerned it is better suited to a large proportion of medical students than some other well known text-books. The illustrations are numerous, a large proportion of them new, most of them good, but a few somewhat crude. In some instances the illustrations though new, are not equal to many others well known. The book numbers among its cuts more diagrams than are usually furnished in text-books—a matter we consider of considerable importance in teaching, and in regard to which there is room for ingenuity and originality.

Few teachers of physiology these days who have enjoyed modern opportunities themselves will dispute Prof. Stewart's views of teaching physi-

ology as expressed in his preface; and there can be no doubt that physiology must be studied more and more as an experimental science in all institutions up to date. At the same time it must not be forgotten that the claims on the student of medicine in one direction and another, are yearly increasing. No doubt much of the time that has in the past been dawdled away in the dissecting room, might be profitably spent in some other laboratory. Nevertheless, teachers may be said to be now experimenting on the problem: To what extent is it judicious to attempt laboratory work with the ordinary rank and file of medical students, and how far should this be carried out by the more complicated apparatus and methods. We are very apt to think that the latest in education as in everything else, must be the best; but educational methods are themselves experiments, so that while there can be no doubt that for the professed physiologist, technical methods in all their varieties are admirable, if not indispensable, we believe that technicalities and laboratory work generally can be readily overdone for the undergraduate. It does not follow that the student acquires thinking and doing ability in proportion to the time he spends in a laboratory.

While it is cruel to feed the young mind solely on the husks of old-fashioned didactic lectures, it seems to us equally injudicious to introduce any more laboratory work than can be thoroughly discussed in the lecture room and its significance digested by the student—all the more as practical exercises in physiology generally involve more or less vivisection and sacrifice of life and consume an enormous amount of time. We have dwelt on this subject somewhat because it affects materially one's attitude towards Prof. Stewart's book. We know of no work of the same size into which technicalities have been introduced to the same extent, even independently of the practical exercises. About the latter there will be considerable difference of opinion. Some will doubt whether it is judicious to attempt to introduce into a book, somewhat inconvenient to handle in the laboratory, directions for work there. No doubt many would have welcomed these same exercises if bound together separately. As, however, directions suitable for classes in one laboratory, have generally to be modified to fit them for those of another, we are ourselves inclined to regard these "Practical Exercises" as very useful suggestions to teachers and advanced students.

We notice that the subject of anatomy, coarse and fine, has been almost ignored by the writer of this work, but it is a significant fact that some authors who formerly observed a similar plan have, in later editions, introduced histology. We are inclined to think that Prof. Stewart's book would have been more valuable for the great mass of medical students if he had worked in structure and function together more fully, and sometimes omitted or dealt more briefly with descriptions of instruments, methods, etc.,—of great interest no doubt to the professed physiologist, but somewhat burthensome if carried beyond a certain limited

treatment for the ordinary student. We do not question that in this handling of the subject, the author is thoroughly modern—we simply doubt whether he has not carried it too far, in such a book.

We also have great doubt whether it is judicious, apart from the few great and well established discoveries of physiology, to introduce the names of investigators into an ordinary text-book, especially as all canno be named, and according to the author's own admission, "names no less worthy of mention have often been omitted" in this work. Nothing makes a name more widely or more quickly known than its use in a text-book; and who would deliberately undertake to decide what names should thus be rendered prominent and what others consigned to obscurity so far as the student body of readers is concerned?

The style of this work is clear and readable throughout. The author shows himself to be a thoroughly well informed and competent physiologist,—one who has assimilated the best that has been produced and has set it forth with the judgment and skill of an experienced teacher. If we have any doubt at all as to whether his book is perfectly suited to the average student, we have none whatever as to its adaptability to advanced students, the progressive general practitioner and to such teachers as may not have the time to follow up the literature of physiology in different languages.

The work is thoroughly up to date and this is evidenced in an especial manner by the fact that space has been found for a short chapter on "Internal Secretion"—a subject that may be said to be as yet in a molten condition. Although we have many works on the subject, Prof. Stewart's book may be justly regarded as sufficiently new in form and treatment to constitute it a distinctly valuable contribution to the literature of physiology. Wesley Mills.

Lewis's Nursing Chart. H. K. Lewis, 136 Gower street. London, W.C.

These charts are drawn up for the use of nurses, so that they may, if necessary, keep hourly records of their cases. Each day occupies a page and there are spaces for recording temperature, pulse, medicine, &c., &c. Such charts will be useful to ensure accuracy on the part of the nurse, and to present to the attending physician a succinct history of the past twenty-four hours.

Society Proceedings.

AMERICAN PÆDIATRIC SOCIETY.

Eighth Annual Meeting.

Held at Montreal, Canada, May 25th, 26th, 27th, 1896.

Joseph O'Dwyer, M.D., President.

Owing to the necessary absence of the President, Dr. James C Wilson, of Philadelphia, the First Vice-President, presided. The first session was opened by the reading of the President's address, entitled "The Evolution of Intubation." This had been prepared at the request of the Council, and was a paper of great interest, describing the labours which Dr. O'Dwyer pursued with untiring devotion to a great idea through five long years. A bivalve tube was first used, but after three years of continuous effort it was abandoned and experiments were begun with the solid tube. The writer described the various experiments made with alternating failure and success, until at last obstacle after obstacle was overcome and imperfection after imperfection was removed. As a result of this patient toil perfected instruments were given to the profession, a very rare thing in the history of medicine. The various steps taken in attaining this great result were narrated with the simplicity and modesty which has always characterized the literary work of Dr. O'Dwyer. A complete set of instruments showing the evolution of intubation from the first bivalve tube to the present perfected model proved of much interest.

The first paper was read by Dr. George N. Acker, of Washington, on "Gangrene of the Lung following Typhoid Fever." Dr. J. H. Fruitnight, of New York, read a paper on "Malignant Endocarditis," and presented a specimen. As the bacteriological examination showed that the condition was due to the presence of streptococci, the author advocated the use of streptococcus antitoxin serum in such cases.

At the second session Dr. A. H. Wentworth, of Boston, read a most exhaustive paper on "Lumbar Puncture," and reported twenty-nine cases. He affirmed that while normal cerebro-spinal fluid contains neither fibrin nor cells and is clear, it is always cloudy in cases of meningitis, though the cloudiness is sometimes very slight. This is caused by cells, the character of the cells differing with the variety of meningitis. The operation, the author believes, offers a valuable

means of diagnosis. For such purposes, however, the microscope is essential, and inoculation experiments are also of value. This was followed by a paper on "Tapping the Vertebral Canal," with remarks on local treatment, by Dr. Augustus Caillé, of New York. He reported twenty-one cases, and believed that a study of the cases reported up to the present time would certainly convince the most skeptical that Quincke's puncture is of positive value as a method of diagnosis. It is simple and usually easy of performance. In two cases Dr. Caillé injected antiseptics into the sub-arachnoid space, but without material results. He proposes in some future case to lay bare the dura by removing a button of bone and irrigating from a lumbar puncture upwards through an opening in the dura.

Dr. C. G. Jennings, of Detroit, also read a valuable paper on "Lumbar Puncture," and reported practical experience. Dr. Floyd M. Crandall, of New York, read a paper on "The occurrence of Influenza in Children," and reported local epidemics. Dr. Samuel S. Adams, of Washington, reported an extremely interesting case of "Temporary Insanity following Typhoid Fever." Dr. Frederick A. Packard, of Philadelphia. reported a case of "Endothelioma of the Brain with Atrophy of the Paralyzed Members." Dr. Henry Jackson, of Boston, read a paper on "Nasal Feeding in Diphtheria," in which he advocated feeding by means of a soft tube passed through the nose into the œsophagus in certain cases of diphtheria. As this can be done with ease, it does much by preventing exhaustion of the child's strength.

Dr. William Osler, of Baltimore, read a paper on "The Classification of Tics or Habit Movements." He made the following classification: (1) Simple tic or habit spasm; (2) tics with superadded psychical phenomena (maladie de la tic convulsif, or Gilles de la Tourette's disease); (3) complex co-ordinate tics; (4) tic psychique. An imperative idea is the psychical equivalent of, and has an origin similar to, the motor tic. Each of these subdivisions was elaborated and illustrated by practical examples.

The third session was devoted to the antitoxin treatment of diphtheria. The report of the Collective Investigation Committee of the Society upon the results of the antitoxin treatment in private practice was read. Over five thousand cases were reported, the results being, on the whole, more favourable than any extended reports that have thus far appeared. A complete report will be published in full in our July number. Dr. F. A. Packard reported favourable results of the antitoxin treatment, and Dr. S. S. Adams read a paper on "The Comparative Results of the Treatment of Diphtheria with and without Antitoxin in the District of Columbia." It appears that the

death rate from diphtheria in the District of Columbia since the appearance of antitoxin has materially diminished. Dr. A. Seibert, of New York, read a paper on "Sudden Death After Antitoxin Injections." He reported a series of striking experiments which showed that the injection into animals of carbolic acid, even in very weak solution, was constantly followed by characteristic spasmodic movements. Another series of experiments was made to determine the effects of subcutaneous injections of air. The results seem to show that antitoxin can contain but infinitesimal quantities of carbolic acid. They also render the proposition reasonable that the few sudden deaths reported after the injection of antitoxin might be due to the injection at the same time of air. The general discussion elicited by these papers was extremely interesting and showed a unanimous and very strong sentiment in favour of antitoxin.

At the fourth session Dr. Rowland G. Freeman, of New York, read a paper on "Low Temperature Pasteurization of Milk at about 67° C." He proved that this temperature was sufficient to kill numerous pathogenic bacteria and various atmospheric bacteria, and referred to the importance of avoiding unnecessary heat in the preparation of milk for infants' use. He presented a new apparatus of simple construction designed to Pasteurize milk at 67° C. Dr. Charles W. Townsend, of Boston, reported several cases of "Thigh Friction in Infants." Dr. William P. Northrup, reported a most interesting case of "Apparently Relapsing Cerebro-Spinal Meningitis," followed by death and autopsy, which elicited a warm discussion on the pathology and diagnosis of meningitis. Dr. Henry Lafleur, of Montreal, reported a case of "Insolation in an Infant of Thirteen Months." Dr. A. D. Blackader, of Montreal, reported a case of "Enlargement of the Liver" in a young child, with symptoms closely resembling typhoid fever.

Papers were read by title by Drs. B. K. Ratchford, of Cincinnati; F. Forcheimer, Cincinnati; Irving M. Snow, of Buffalo, and Henry D. Chapin, of New York.

The last session was devoted to the presentation of pathological specimens, specimens being presented by Drs. Rotch, Holt, Caillé, Adams, Packard, Acker, Freeman and Townsend.

In the executive meeting the following officers were elected for the coming year: President, Dr. Samuel S. Adams, Washington; First Vice-President, Dr. W. S. Christopher, Chicago; Second Vice-President, Dr. Charles W. Putnam, Boston; Secretary, Dr. Frederick A. Packard, Philadelphia; Treasurer, Dr. Charles W. Townsend, Boston; Recorder and Editor, Dr. Floyd M. Crandall, New York.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

VOL. XXIV. JUNE, 1896. No. 12.

THE FLOWER MISSION.

The ladies who have for many years taken charge of this mission have now started on the twenty-third season of their labour of love.

The object is to give every week a bunch of flowers to each patient in our great hospitals, thus enlivening the bedside of the sick and brightening the weary period of suffering. The hospitals thus supplied are the Montreal General, the Royal Victoria, the Montreal Maternity, St. Margaret's Home, and the Ladies' Benevolent Institution.

To accomplish this very many hundred bouquets are required. The flowers are collected and sent in each Saturday morning. They are arranged in bunches of suitable size, and are then distributed during the afternoon. Visitors to the hospitals on Sundays cannot fail to remark the bright and lively appearance imparted to the wards by the little bunch of lovely flowers on each patient's table beside the bed. Everyone must recognize the advantage to the sick by having, as it were, a breath of the open gardens and fields brought to their side; for who does not love flowers? And the kind word with which they are given helps pass the weary time of sickness or convalescence. But to carry on this work requires much labour, and unfortunately the labourers are few. We appeal to our friends to help on this good work; speak to your lady friends and get them interested and induce them to share in the pleasure felt by those already engaged in it.

More flowers, more workers, more money are needed to supply the ever-increasing number of patients in all the hospitals.

The workers meet every Saturday morning at the Natural History Society rooms, University street, where flowers will be gratefully received, as well as at the C. P. R. Windsor Station and the G. T. R. Bonaventure Station, where baskets are provided for their reception.

However few may be the flowers that are sent, no one should be deterred from sending; they will supply at least a bunch for one patient.

Any communications may be addressed to the Natural History Society rooms for the Secretary of the Montreal Flower Mission.

Freely ye have received, freely give your flowers for those who have none.

The following circular has been received from the Board of Health of the Province of Quebec:

MONTREAL, May 6th, 1896.

SIR—I have the honour to communicate to you the following extract from the minutes of our meeting of the 29th April last:

Being informed that a great number of cases of croup escape the control of sanitary authorities, and that it is mostly due to the public being generally under the impression that croup is not a contagious disease. the Board of Health of the Province of Quebec authorizes the publication of the following definitions:

Croup is nothing else than diphtheria attacking more especially the respiratory tract (larynx). The expression *laryngeal diphtheria* designates better than the term croup the nature of the disease and should be preferably employed.

Distinction should always be made between croup or laryngeal diphtheria, which is contagious, and false croup or laryngismus stridulus, which is not contagious. There are no membranes in laryngismus stridulus or false croup. The cough of croupal form which characterizes this disease is due only to a nervous element.

We hope, sir, that each time you will have occasion to do so you will see that the measures prescribed against diphtheria be equally applied against croup, both being one and the same disease.

I have the honour to be your obedient servant,

ELZÉAR PELLETIER, *Secretary*.

The May number of *The New York Polyclinic* contains an article by Dr. Ed. A. Ayers on Symphysiotomy and Its After Effects, with a description of a new method and a report of five successful cases. There is also a tabulated report of all the recorded cases in America.

NEW BOOKS, ETC., RECEIVED AND NOTED.

Pregnancy, Labour, and the Puerperal State. By Egbert H. Grandin, M.D., and George W. Jarman, M.D. Philadelphia: The F. A. Davis Co.

Transactions of the American Dermatological Association.. Nineteenth annual meeting, September 17, 18, and 19, 1895. Charles W. Allan, Secretary, New York.

A Manual of Anatomy. By Irving S. Haynes, Ph.B., M.D. Philadelphia: W. B. Saunders.

Ruhmkorff Induction Coils. By H. S. Norrie. New York: Spon & Chamberlain.

Mortality from Casualties. The Mutual Life Insurance Co. of New York.

The Royal London Ophthalmic Reports. October, 1895. London: J. and A. Churchill.

A Neurologist's Farewell. C. H. Hughes, M.D. Reprint from Alienist and Neurologist.

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